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Transactions of the Indiana Horticultural Society for the year ...

Indiana Horticultural Society,
Indiana Horticultural Society. Meeting

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Fig. 1. A table of the Apple Show held under the auspices of the Indiana Horticultural Society, at the Farmers' Short Course at Purdue University, January 1909

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TRANSACTIONS

OF THE

Indiana Horticultural Society

FOR THE YEAR 1909

BEING A

REPORT OF THE FORTY-NINTH ANNUAL MEETING, HELD IN ROOMS 11 AND 12, STATE HOUSE, INDIANAPOLIS, IND., DECEMBER 1 AND 2, 1909, TOGETHER WITH REPORT OF THE SUMMER MEETING, HELD IN CENTERVILLE, AUGUST 4 AND 5—PROCEEDINGS OF THE STATE BOARD OF HORTICULTURE, LOCAL SOCIETIES, ETC.

EDITED BY

C. G. WOODBURY, SECRETARY

LAFAYETTE, IND.

TO THE GOVERNOR

INDIANAPOLIS:

WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING

1910

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THE STATE OF INDIANA,
EXECUTIVE DEPARTMENT,
January 19, 1910.

Received by the Governor, examined and referred to the Auditor of State for verification of the financial statement.

OFFICE OF THE AUDITOR OF STATE,
INDIANAPOLIS, January 20, 1910.

The within report, so far as the same relates to moneys drawn from the State Treasury, has been examined and found correct.

JOHN C. BILLHEIMER,
Auditor of State.

January 31, 1910.

Returned by the Auditor of State, with above certificate, and transmitted to Secretary of State for publication, upon the order of the Board of Commissioners of Public Printing and Binding.

MARK THISTLETHWAITE,
Secretary to the Governor.

Filed in the office of the Secretary of State of the State of Indiana, January 31, 1910.

FRED A. SIMS,
Secretary of State.

Received the within report and delivered to the printer January 31, 1910.

A. E. BUTLER,
Clerk Printing Board.

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LETTER OF TRANSMITTAL.

To His Excellency, Hon. Thomas R. Marshall, Governor of Indiana:

Sir—In accordance with the requirements of law, I have the honor to herewith present you with the forty-ninth annual volume of transactions of the Indiana Horticultural Society, together with such other papers as seem to be appropriate for publication in this connection.

Respectfully,

C. G. WOODBURY,
Secretary.

January 19, 1910.

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OFFICERS OF THE SOCIETY AND COMMITTEE ON HORTICULTURE FOR 1909-10.

President	C. N. LINDLEY	Salem.
Vice-President	J. C. GROSSMAN	Bridgeport.
Secretary	C. G. WOODBURY	Lafayette.
Treasurer	S. A. HAZELETT	Greencastle.

District Vice-Presidents.

First District	W. J. RITTERSKAMP	Princeton.
Second District	R. A. SIMPSON	Vincennes.
Third District	T. J. HEACOCK	Salem.
Fourth District	H. M. STOUT	Trafalgar.
Fifth District	JAS. W. CARVER	Greencastle.
Sixth District	J. K. HENBY	Greenfield.
Seventh District	J. J. MILHOUS	Valley Mills.
Eighth District	AMOS GARRETSON	Pendleton.
Ninth District	J. M. SNODGRASS	Kirklin.
Tenth District	G. N. MOYER	Laketon.
Eleventh District	J. A. STEINMAN	McGrawsville.
Twelfth District	A. H. BOGUE	LaGrange.
Thirteenth District	GEORGE MATTHEWS	South Bend.

Executive Committee.

PROF. JAMES TROOP, Lafayette. H. H. SWAIM, South Bend.
E. Y. TEAS, Centerville.

Committee of Control of Experimental Orchard.

JOE A. BURTON, Orleans, Superintendent.
C. M. HOBBS, PROF. JAMES TROOP and R. D. SIMPSON.

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OFFICERS OF THE INDIANA HORTICULTURAL SOCIETY SINCE ITS ORGANIZATION IN 1860.

Date.	President.	First Vice-President.	Secretary.	Treasurer.
1860	*Reuben Ragan	William Miller	Wm. H. Loomis	John C. Teas.
1861-2	*John A. Matson	*William Miller	*Wm. H. Loomis	John C. Teas.
1863	I. D. G. Nelson	Joseph Orr	Geo. M. Beeler	John C. Teas.
1864	I. D. G. Nelson	Joseph Orr	Geo. M. Beeler	John C. Teas.
1865	I. D. G. Nelson	Joseph Orr	Geo. M. Beeler	Calvin Fletcher.
1866	I. D. G. Nelson	*Joseph Orr	*Geo. M. Beeler †Samuel V. Morris	Calvin Fletcher.
1867	I. D. G. Nelson	Allen Furnas	Seth W. Pearson ‡Joseph Gilbert	J. S. Dunlop.
1868	I. D. G. Nelson	*Allen Furnas	Seth W. Pearson ‡Joseph Gilbert	*J. S. Dunlop.
1869	*I. D. G. Nelson	S. Burnett	T. A. Bland ‡W. H. Ragan	Charles Lowder.
1870	Allen Furnas	J. C. Ratliff	Seth. W. Pearson ‡W. H. Ragan	Charles Lowder.
1871	Allen Furnas	J. C. Ratliff	W. H. Ragan	Charles Lowder.
1872	J. C. Ratliff	I. S. Jessup	W. H. Ragan	Charles Lowder.
1873	J. C. Ratliff	I. S. Jessup	J. G. Kingsbury	Charles Lowder.
1874	J. C. Ratliff	*I. S. Jessup	W. H. Ragan	Charles Lowder.
1875	Joseph Gilbert	J. A. Mendenhall	W. H. Ragan	Charles Lowder.
1876	Joseph Gilbert	*J. A. Mendenhall	W. H. Ragan	Charles Lowder.
1877	Sylvester Johnson	J.M. Bulla	W. H. Ragan	Daniel Cox.
1878	Sylvester Johnson	J. M. Bulla	W. H. Ragan	Daniel Cox.
1879	Sylvester Johnson	*J. M. Bulla	W. H. Ragan	Daniel Cox.
1880	Sylvester Johnson	S. Burnett	W. H. Ragan	Daniel Cox.
1881	Sylvester Johnson	*S. Burnett	W. H. Ragan	Daniel Cox.
1882	Sylvester Johnson	J. B. Elliot	W. H. Ragan	Daniel Cox.
1883	Sylvester Johnson	C. M. Hobbs	‖W. H. Ragan †C. M. Hobbs	Daniel Cox.
1884	ylvester Johnson	E. Y. Teas	C. M. Hobbs	Daniel Cox.
1885	Sylvester Johnson	E. Y. Teas	C. M. Hobbs	Daniel Cox.
1886	Sylvester Johnson	E. Y. Teas	C. M. Hobbs	Daniel Cox.
1887	Sylvester Johnson	E. Y. Teas	C. M. Hobbs	Daniel Cox.
1888	Allen Furnas	W. A. Workman	C. M. Hobbs	Daniel Cox.
1889	*Allen Furnas	J. C. Stevens	C. M. Hobbs	Daniel Cox.
1890	J. C. Ratliff	Joe. A. Burton	C. M. Hobbs	*Daniel Cox. †S. Johnson.
1891	E. J. Howland	Joe A. Burton	W. H. Ragan	W. A. Workman
1892	E. J. Howland	E. Y. Teas	W. H. Ragan	W. A. Workman.
1893	C. M. Hobbs	E. Y. Teas	W. H. Ragan	W. A. Workman.
1894	C. M. Hobbs	E. Y. Teas	W. H. Ragan	F. Beeler, Sr.
1895	C. M. Hobbs	E. Y. Teas	W. H. Ragan	*F. Beeler, Sr.
1896	C. M. Hobbs	E. Y. Teas	Jas. Troop	Isham Sedgwick.
1897	C. M. Hobbs	E. Y. Teas	Jas. Troop	Isham Sedgwick.
1898	C. M. Hobbs	E. Y. Teas	Jas. Troop	Sylv. Johnson.
1899	C. M. Hobbs	E. Y. Teas	Jas. Troop	Sylv. Johnson.
1900	C. M. Hobbs	Mrs. W. W. Stevens	Jas. Troop	Sylv. Johnson.
1901	C. M. Hobbs	Mrs. W. W. Stevens	Jas. Troop	Sylv. Johnson.
1902	W. W. Stevens	E. B. Davis	W. B. Flick	Sylv. Johnson.
1903	W. W. Stevens	H. H. Swaim	W. B. Flick	Sylv. Johnson.
1904	W. W. Stevens	H. H. Swaim	W. B. Flick	Sylv. Johnson.
1905	H. H. Swaim	W. C. Reed	W. B. Flick	L. B. Custer.
1906	H. H. Swaim	W. C. Reed	W. B. Flick	S. A. Hazelett.
1907	W. C. Reed	L. B. Custer	W. B. Flick	S. A. Hazelett.
1908	W. C. Reed	L. B. Custer	W. B. Flick	S. A. Hazelett.
1909	C. N. Lindley	J. C. Grossman	C. G. Woodbury	S. A. Hazelett.

*Deceased. †Appointed to vacancy. ‡Corresponding Secretary. ‖Resigned.

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CONSTITUTION AND BY-LAWS

OF THE

INDIANA HORTICULTURAL SOCIETY

CONSTITUTION.

Article I. This organization shall be known as the Indiana Horticultural Society.

Article II. The objects of the Society are to develop facts and promulgate information pertaining to the science and art of horticulture.

Article III. Its officers shall consist of a President, a Vice-President, Secretary, Treasurer, and Executive Committee of three.

Article IV. There shall be a Committee on Horticulture consisting of one member from each Congressional District.

Article V. Its members shall consist of annual members, paying a fee of one dollar per annum into the treasury of the Society, and honorary members, who shall be elected by the Society for merit as horticulturists of distinction, who may, at pleasure, participate in the deliberations of the Society. Members' wives will be members without fee.

Article VI. Each member shall be entitled to a copy of the transactions of the Society as often as the same shall be published.

Article VII. The Treasurer shall not disburse money except on the order of the Secretary, countersigned by the President.

Article VIII. The Executive Committee shall require of the Treasurer such security as may be deemed sufficient for the safe keeping of the funds of the Society.

Article IX. The seal of the Society shall consist of an outer rim, embracing the inscription, "Indiana Horticultural Society;" within this, and above the central figure, consisting of a vase of flowers, a pear and apple resting upon a section of vine with its fruit, the words, "Organized 1860;" below, "Incorporated 1875."

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BY-LAWS.

I. The President shall preside at all meetings of the Society; he, together with the Secretary, shall have power to call meetings of the Executive Committee; he shall present to the Society in his annual address such suggestions and recommendations as may seem appropriate, and shall appoint all special committees unless otherwise directed by the Society.

II. The Vice-President shall preside in the absence of the President. Each member of the Committee on Horticulture shall be elected to represent his respective district, said districts to be the Congressional Districts as existing in 1902. Each member of the Committee on Horticulture shall make annual reports to the Society, embracing such suggestions and recommendations as may to him seem best for the promotion of the horticultural interests of said district, and he shall give such attention to the organization and building up of local societies in his district as may be within his power.

III. The Secretary shall record all the doings of the Society, collate and prepare all communications, etc., for the public press, and pay over all money received from members, or otherwise, to the Treasurer, on his receipt; shall receive and answer all communications addressed to the Society; establish and maintain correspondence with all local, county, district and State horticultural societies, and secure by exchange their transactions, as far as possible, to aid the President, as an executive officer, in the dispatch of business relating to the meetings of the Society, preparing and publishing circulars and notices of horticultural and similar meetings of general interest, and report to the annual meeting of the Society an abstract of the matter that has come into his possession, which, with its approval, shall become part of the transactions for the current year. He shall also act as librarian of the Society, and shall have the care and custody of its room and its property, under such regulations as may be adopted for the government thereof.

IV. The Treasurer shall receive and hold all funds of the Society, paying out the same only as prescribed by the Constitution. Before entering upon his duties he shall give bond to the Society in the sum of two thousand dollars ($2.000) for the faithful performance of such duties.

V. The officers shall be elected annually, by a ballot vote, and shall serve until their successors are elected and qualified.

VI. The objects of the Society being to collect, condense and collate information relative to varieties of fruits and other horticultural products, and dispense the same among the people of the State, every member shall pay into the treasury one dollar a year for the purpose of publishing and

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other expenses: Provided, That members of local horticultural societies may become members by paying into the treasury, through their respective local organizations, the sum of fifty cents each. Any person interested in horticulture may become a member by forwarding to the Treasurer or Secretary the fee of membership.

VII. The President, Secretary and Executive Committee may call a meeting of the Society at any time and place they may consider advisable by a notice of thirty days in the public press, or by circulars properly distributed.

VIII. This Society shall hold an annual meeting on the first Wednesday in December of each year, and at such place as the Society shall designate at its previous meeting, and semiannual and called meetings may be held as provided for in the preceding section.

IX. The officers of this Society shall constitute a Board of Horticulture, five of whom shall be a quorum for the transaction of business, the officers of the Society to be officers of the Board, said Board to meet immediately on the adjournment of the Society, and afterward on its own adjournment. It shall be the duty of the Board of Horticulture to investigate all accounts or claims against the Society, when presented for payment; to collect horticultural information, for which it may employ an agent, or agents, to visit different portions of this or adjoining States, and may draw on the treasury for money to pay the necessary expenses, when there is money in the treasury not otherwise needed, and said Board shall make full and definite report of its proceedings to the next regular meeting of the Society.

X. These by-laws may be amended and otherwise changed at any regular meeting of the Society by a majority vote.

XI. The thirteen congressional districts as now (1902) existing shall constitute the several Vice-President districts.

XII. The Legislative Committee shall consist of three members elected by the Society, who shall serve three years: Provided, That of the present committee (1906) W. B. Flick shall serve one year, C. M. Hobbs two years and J. J. W. Billingsley three years.

XIII. No member shall be entitled to vote on any question before this Society unless he shall have paid his dues, and shall, at the beginning or during the session announce his presence to the Secretary; and it shall be the duty of the Secretary, when requested, to read such announcements and to call the roll from such list on questions before the Society (1908).

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LIST OF MEMBERS

OF THE

INDIANA HORTICULTURAL SOCIETY

For 1909

LIFE MEMBERS.

Name.	*Postoffice.*	*County.*	*When became Members.*
Burton, Joe A	Mitchell	Lawrence	1885
Butler, Prof. A. W	Indianapolis	Marion	
Cowing, Granville	Muncie	Delaware	1877
Hobbs, C. M	Bridgeport	Marion	1875
Kane, Morgan	Mitchell	Lawrence	
Shanklin, A. Y	Bringhurst	Carroll	1890
Teas, E. Y	Centerville	(Charter Member)	
Woods, Arthur Earl	Clayton	Hendricks	

HONORARY MEMBERS.

Name.	*Postoffice.*
Bailey, Dr. L. H	Ithaca, N. Y.
Beach, Prof. S. A	Ames, Iowa.
Burrill, Prof. T. J	Champaign, Ill.
Craig, Prof. John	Ithaca, N. Y.
Dunlap, Hon. H. M. and wife	Savoy, Ill.
Farnsworth, W. W	Waterville, Ohio.
Garfield, Chas. W	Grand Rapids, Mich.
Green, Prof. W. J	Wooster, Ohio.
Hale, Hon. J. H	South Glastonbury, Conn.
Keach, James L	Indianapolis, Ind.
Lazenby, Prof. W. B	Columbus, Ohio.
Stanton, J. W	Richview, Ill.
Taft, Prof. L. R	Agricultural College, Mich.
VanDeman, Prof. H. E	Washington, D. C.
Willard, S. D	Geneva, N. Y.

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ANNUAL MEMBERS.

Name.	*Postoffice.*	*County.*	*Year.*
Abraham, Omer	Martinsville	Morgan	1908
Aiken, W. W. and wife	Franklin	Johnson	1901
Alward, Geo. W	South Bend	St. Joseph	1904
Anderson, E. D. and wife	Mentone	Kosciusko	
Anderson, O. C. and wife	Mentone	Kosciusko	
Andrews, Wm. H. and wife	Lagrange	Lagrange	
Apple, John W. and wife	Oaklandon	Marion	1875
Arbuckle, Alvin and wife	Clermont	Marion	1905
Allen, D. and wife	Greencastle	Putnam	1905
Atwood, J. G. B. and wife	Albion	Noble	1906
Baldwin, T. A. and wife	Oxford	Benton	
Bartholomew, H. S. K. and wife	Goshen	Elkhart	1903
Bash, C. S. and wife	Fort Wayne	Allen	1903
Barnett, W. J. and wife	Charleston	Clark	1905
Barr, John and wife	Greenfield	Hancock	1908
Barr, R. J. and wife	Washington	Daviess	
Beaver, John M. and wife	Glenwood	Rush	1906
Beck, R. L. and wife	Liberty	Fayette	1903
Beckett, W. P. and wife	Aurora	Dearborn	1906
Berryman, W. L. and wife	Tipton	Tipton	1896
Beeler, John and wife	Zionsville	Boone	1905
Bermaner, Dr. Joe M. and wife	Bridgeport	Marion	1905
Beuoy, Ran and wife	Matthews	Grant	1891
Billingsley, Samuel and wife	Greenwood	Johnson	1904
Billingsley, J. J. W. and wife	Malott Park	Marion	
Biliter, Ben. F	Huntington	Huntington	
Blair, Jesse H	Indianapolis	Marion	1908
Blasdel, Amos and wife	Broad Ripple	Marion	1904
Blue, E. F. and wife	Indianapolis	Marion	1903
Bogue, A. H. and wife	Lima	Lagrange	1903
Brallier, A. H	Lagrange	Lagrange	1908
Bricker, Enos and wife	Brimfield	Noble	
Bridges, John M. and wife	Dugger	Sullivan	
Buck, H. F. and wife	Elberfeld	Warrick	1904
Bullock, L. O. and wife	Lagrange	Lagrange	
Burkhart, Andrew and wife	Martinsville	Morgan	1906
Burris, J. B. and wife	Cloverdale	Putnam	
Campbell, Geo. B. and wife	Bloomington	Monroe	
Cantley, J. M. and wife	Logansport	Cass	1905
Carr, Prof. J. W. and wife	Anderson	Madison	1904
Case, Riley C. and wife	Lagrange	Lagrange	
Cavanaugh, H	Wolcottville	Lagrange	1903
Clinton, Joseph and wife	Brookston	White	1908
Clark, Ed. J	Shelbyville	Shelby	1903
Coffin, J. F. and wife	Greenfield	Hancock	1905

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Name.	*Postoffice.*	*County.*	*Year.*
Cole, B. F. and wife	Trafalgar	Johnson	1902
Coleman, S. S. and wife	Fort Wayne	Allen	1903
Conger, Sid	Shelbyville	Shelby	1902
Corbly, Mrs. Lida	Indianapolis	Marion	
Cotton, I. N.	Indianapolis	Marion	
Copeland, David F. and wife	Bridgeport	Marion	1906
Crawford, John and wife	Covington	Fountain	1906
Custer, L. B. and wife	Logansport	Cass	1870
Carver, Jas. W. and wife	Greencastle	Putnam	1905
Darlington, Zeba and wife	Pendleton	Madison	1902
Davis, Mrs. B. A.	Laporte	Laporte	1894
Daugherty, Deolan and wife	Cambridge City	Wayne	1905
Davis, Evan B. and wife	Danville	Hendricks	1901
Davis, Regin	Morristown	Shelby	1908
Deal, L. E. and wife	Lagrange	Lagrange	1905
DeVilbiss, W. T.	Fort Wayne	Allen	
DeVore, E. A. and wife	Indianapolis	Marion	
Dietrick, John J. and wife	Borden	Jackson	1905
Dinsmore, Joe S. and wife	Bloomington	Monroe	
Dixon, P. F.	Fort Wayne	Allen	1908
Doan, John L.	Westfield	Hamilton	1904
Dorner, Fred J., Jr., and wife	Lafayette	Tippecanoe	
Eaton, Mrs. Josiah	Lagrange	Lagrange	1904
Eickhoff, Ed. A. and wife	Wanamaker	Marion	1873
Eller, Thomas and wife	Bloomington	Monroe	
Eshelman, A. L. and wife	Wolcottville	Lagrange	
Eshelman, Henry and wife	Wolcottville	Lagrange	
Eshelman, L. L. and wife	LaGrange	Lagrange	
Eshelman, Adrian C. and wife	Wolcottville	Lagrange	1906
Evans, James B. and wife	Bluffton	Wells	1904
Febles, George and wife	Kendallville	Noble	
Feller, J. C. and wife	Lagrange	Lagrange	1908
Fees, Fred and wife	Bloomington	Monroe	
Fisher, Eugene and wife	Lagrange	Lagrange	1905
Fitzpatrick, Mrs. Laura	Whiteland	Johnson	
Flanner, Frank W. and wife	Indianapolis	Marion	
Flick, W. B. and wife	Lawrence	Marion	1876
Foote, Henry G. and wife	Albion	Noble	1903
Foote, C. W. and wife	South Bend	St. Joseph	1903
Forbes, F. A. and wife	Plymouth	Marshall	1905
Fowler, Jas. R. and wife	Monticello	White	1906
Frame, J. R. and wife	South Bend	St. Joseph	
Fry, W. H.	Greenwood	Johnson	
Furgeson, L. E. and wife	White Pigeon, Mich.		

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Name.	*Postoffice.*	*County.*	*Year.*
Garmire, Marion and wife	Lagrange	Lagrange	
Garretson, Amos and wife	Pendleton	Madison	
Garretson, Chas. A	Pendleton	Madison	
Garretson, David	Pendleton	Madison	1894
Garrett, F. B. and wife	Burns City	Martin	1905
Garwood, Nathan F. and wife	Richmond	Wayne	1906
German Kali Works	562 Monadnock Bldg., Chicago, Ill.		
Gloyd, J. D. and wife	Fort Wayne	Allen	1903
Goble, Jas. N. and wife	Greenfield	Hancock	
Goepper, Jacob and wife	Haughville Station	Marion	
Graham, A. A. and wife	Liberty	Union	
Greene, W. T., and wife	Albion	Noble	1904
Grossman, J. C. and wife	Bridgeport	Marion	1893
Gustin, E. R	Peru	Miami	1900
Haines, Noah C. and wife	Pendleton	Madison	1896
Haines, H. E. and wife	Granger	St. Joseph	1904
Hale, Henry J. and wife	Indianapolis	Marion	1890
Halstead, Wm. and wife	Rensselaer	Jasper	
Harris, T. J. and wife	Glendale, Ohio.		
Hardy, Thomas M. and wife	Pendleton	Madison	1897
Harper, John E	Morristown	Shelby	1905
Hart, Wm. and wife	Peru	Miami	1908
Hazelett, S. A. and wife	Greencastle	Putnam	1902
Hartzler, D. J. and wife	Topeka	Lagrange	1903
Heacock, T. J. and wife	Salem	Washington	1809
Heine, H. C. and wife	Indianapolis	Marion	
Henby, Elijah A. and wife	Greenfield	Hancock	
Henby, J. K. and wife	Greenfield	Hancock	1885
Henderson, R. D	Carlisle	Sullivan	
Hess, Ed	Brook	Newton	1893
Hill, E. W. and wife	Winchester	Randolph	1906
Hitz, J. E. and wife	Indianapolis	Marion	1902
Hobbs, E. C. M. and wife	Bloomington	Washington	
Hobbs, O. A	Bridgeport	Marion	
Hobbs, Harry	Bridgeport	Marion	
Hoff, Geo. W. and wife	Shipshewana	Lagrange	1904
Hoffman, D. E. and wife	Winchester	Randolph	
Hoover, John and wife	Spiceland	Henry	
Hoover, O. P. and wife	Bridgeport	Marion	1903
Horner, M. E. and wife	Lima	Lagrange	1903
Howland, Chas. A	Indianapolis	Marion	1860
Howland, Elisha J	Indianapolis	Marion	1860
Huey, M. G. and wife	South Bend	St. Joseph	
Huffman, T. J. and wife	Henryville	Clark	1905
Imes, W. A. and wife	Brimfield	Noble	1903
Inman, Ira A. and wife	Columbus	Bartholomew	1906

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Name.	*Postoffice.*	*County.*	*Year.*
Jackson, W. C. and wife	Lagrange	Lagrange	
Jacobs, Chas. and wife	Pendleton	Madison	
Jarretson, J. A. and wife	Montpelier	Blackford	1903
Jester, L. N. and wife	Colburn	Tippecanoe	
Jones, Isaac B. and wife	Pendleton	Madison	1903
Johnson, Sylvester	Irvington	Marion	1860
Johnson, D. B. and wife	Mooresville	Morgan	
Johnson, Will	Fort Wayne	Allen	
Johnson, Mrs. E. B	Albion	Noble	1906
Keasy, Ezra and wife	Lima	Lagrange	1904
Kell, George W. and wife	Huntertown	Allen	1902
Kelley, Samuel and wife	Letts		1905
Kelsay, W. A. and wife	Fort Wayne	Allen	1903
Kimmell, J. C. and wife	Ligonier	Noble	1897
King, Caleb and wife	Richmond	Wayne	1900
King, Chris and wife	Rushville	Rush	1901
Kingsbury, J. G	Irvington	Marion	1870
Kinsey, W. E. and wife	Salem Center	Steuben	1904
Kline, Oliver and wife	Huntington	Huntington	1906
Knaub, Ben. and wife	North Vernon	Jennings	
Kring, J. W. and wife	South Bend	St. Joseph	1903
Lafuse, W. H. and wife	Liberty	Union	
Lampman, O. A. and wife	Wolcottville	Lagrange	
Latta, Prof. W. C. and wife	Lafayette	Tippecanoe	
Linmen, W. F. and wife	Noblesville	Hamilton	
Leaming, Henry and wife	Romney	Tippecanoe	
Leitzman, W. F. and wife	Mooresville	Morgan	1882
Libey, C. N. and wife	Lima	Lagrange	1902
Lindley, Chas. N. and wife	Salem	Washington	
Listenfelt, Jacob and wife	Pennville	Jay	1903
Livingston, Burnett and wife	Lagrange	Lagrange	1908
Lockwood, Chas. and wife	Southport	Marion	
Lodewick, A. G. and wife	Bellville	Ohio	1904
Louth, C	Lafayette	Tippecanoe	
Loveland, R. J. and wife	Peru	Miami	1908
Low, John W. and wife	Topeka	Lagrange	1902
Lowth, Chas. and wife	Lagrange	Lagrange	
Lucas, J. W. and wife	Bloomfield	Greene	1907
Maish, D. F. and wife	Frankfort	Clinton	
Marsh, David C. and wife	Edinburg	Johnson	1903
Martin, Horace and wife	South Bend	St. Joseph	
Mason, B. F. and wife	Martinsville	Morgan	1908
Matthews, George and wife	South Bend	St. Joseph	1903
Mays, C. C. and Wife	Frankton	Madison	1903
McCarty, J. H. and wife	Huntertown	Allen	
McClue, Chas. and wife	Fremont	Steuben	

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Name.	*Postoffice.*	*County.*	*Year.*
McClure, W. T. and wife	Haughville Station	Marion	
McCain, A. A. and wife	Indianapolis	Marion	1904
McFarlane. John	Greencastle	Putnam	1908
McIntosh, G. W. and wife	Rego	Orange	
Merritt, W. and wife	Danville	Hendricks	1905
Meyers, R. W. and wife	Bloomington	Monroe	
Milhous, J. J. and wife	Valley Mills	Marion	1890
Milhous, Albert H. and wife	Valley Mills	Marion	
Milhous, J. F. and wife	Bridgeport	Marion	
Miller, Norman and wife	Marion, Pa.		
Mills, J. W. and wife	Lagrange	Lagrange	
Moffett, Frank and wife	Carmel	Hamilton	1902
Moon, H. E. and wife	Portland	Jay	1905
Moore, Dr. Henry	Irvington	Marion	
Moore, C. B. and wife	Monticello	White	1905
Moorehouse, Jno. W. and wife	Albion	Noble	1898
Moyer, G. N. and wife	Laketon	Wabash	1901
Mustard, Wm. and wife	Indianapolis	Marion	1905
Nelson, M. J. and wife	Topeka	Lagrange	1903
Newby, Thos. T. and wife	Carthage	Rush	1890
Newman, R. H. and wife	Lagrange	Lagrange	1900
Newsom, W. T. and wife	Columbus	Bartholomew	1907
Newton, Geo. F. and wife	South Bend	St. Joseph	
Norris, A. D. and wife	Anderson	Madison	1901
Niblack, M. J	Vincennes	Knox	1908
Nicar, Robt. and wife	South Bend	St. Joseph	1906
Nicar, V. and wife	South Bend	St. Joseph	1906
Nysewander, John D	Bridgeport	Hendricks	1909
Osborn, C. C. and wife	Irvington	Marion	1908
Osborn, Elam and wife	Economy	Wayne	1903
Osborn, John and wife	Richmond	Wayne	1904
Overman, J. C. and wife	Knightstown	Henry	1903
Parker, Frank	Mound City, Michigan.		
Pflender, D. C	Acton	Marion	1905
Phelps, W. W. and wife	Noblesville	Hamilton	
Price, Lewis and wife	Lagrange	Lagrange	
Pulling, John and wife	South Bend	St. Joseph	1906
Philips, Albert N. and wife	Albion	Noble	1906
Porter, S. T. and wife	Peru	Miami	1908
Quick, T. J. and wife	Columbus	Bartholomew	1908
Randel, H. M. and wife	Greencastle	Putnam	1906
Ratliff, W. S. and wife	Richmond	Wayne	
Reed, W. C. and wife	Vincennes	Knox	1886
Reed & Fielding	Glenwood	Rush	1865
Replogle, W. H	Hagerstown	Wayne	1908

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Name.	*Postoffice.*	*County.*	*Year.*
Reid, Murdoch & Co	Chicago, Ill		1903
Riley, John and wife	Greencastle	Putnam	1908
Ritterskamp, W. J. and wife	Princeton	Gibson	1891
Robuck, Wesley and wife	Fort Wayne	Allen	
Rockhill, D. K. and wife	South Bend	St. Joseph	
Robbins, Cassandria	Indianapolis	Marion	
Rowe, Chas. and wife	Valentine	Lagrange	1903
Roy, Geo. W. and wife	Wolcottville	Lagrange	1904
Royer, E. E. and wife	Lagrange	Lagrange	
Royer, C. S	Lagrange	Lagrange	
Ruhl, Benj. and wife	Lima	Lagrange	
Sanger, S. F. and wife	South Bend	St. Joseph	1906
Schaeffer, D. B. and wife	Lima	Lagrange	1904
Sears, C. W. and wife	Lagrange	Lagrange	1904
Seaver, G. W. and wife	Austin	Scott	1908
Schermerhorn, J. M. and wife	Brimfield	Noble	1902
Schofield, C. S. and wife	Indianapolis	Marion	1904
Scholl, Jonas and wife	Connersville	Fayette	
Schlotter, J. G	Indianapolis	Marion	1902
Sheridan, James and wife	Fort Wayne	Allen	1904
Sherman, E. B. and wife	Lima	Lagrange	1906
Shinkel, Lewis	Huntington	Huntington	1908
Shirley, Wm. C. and wife	Orleans	Orange	1908
Shoemaker, A. W. and wife	Daleville	Henry	1892
Shoemaker, E. B. and wife	Lagrange	Lagrange	1906
Shortridge, Prof. A. C. and wife	Irvington	Marion	
Sidwell, Henry and wife	Knightstown	Henry	
Simpson, H. M. and wife	Vincennes	Knox	1895
Smith, Al. B. and wife	Garfield	Montgomery	1904
Smith, Chas. C. and wife	Lima	Lagrange	1904
Smith, J. C. and wife	Muncie	Delaware	1908
Smith, O. C. and wife	Fort Wayne	Allen	1904
Smith, Walter S. and wife	Arlington	Rush	1904
Smith, Sumner T	Fort Wayne	Allen	1903
Smith, George P. and wife	Lagrange	Lagrange	1906
Snodgrass, J. M. and wife	Kirklin	Clinton	1903
Snyder, J. W	Sheldon	Wells	1903
Sorg, Theo. and wife	Fort Wayne	Allen	1903
Sower, Daniel L. and wife	Rome City	Noble	1903
Stanley, Perry J. and wife	Albion	Noble	
Starkey, W. D. and wife	Zionsville	Boone	1902
Stemple, Milton and wife	Indianapolis	Marion	1902
Stewart, Prof. Wm. and wife	Burlington, Vt.		
Stevens, Warder W. and wife	Salem	Washington	
Stineman, Jonas and wife	McCrawville	Miami	1900
Stinger, B. F. and wife	Charlottesville	Hancock	
Stough, J. F. and wife	Lagrange	Lagrange	1903
Stout, H. M. and wife	Trafalgar	Johnson	

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Name.	*Postoffice.*	*County.*	*Year.*
Stout, Wilbur C. and wife	Monrovia	Morgan	1900
Strain, Rev. John and wife	Reelsville	Putnam	1908
Sunderland, Cairie and wife	Muncie	Delaware	1908
Swaim, Chas. R. and wife	Zionsville	Boone	1903
Swaim, H. H. and wife	South Bend	St. Joseph	1890
Swaim, Walter A. and wife	Pendleton	Madison	
Swaim, C. E. & wife	Pendleton	Madison	
Swaim, Wm. and wife	Pendleton	Madison	
Sweet, Jno. S. and wife	Albion	Noble	1906
Swift, Evan B. and wife	Franklin	Johnson	
Talbert, Rev. Wm. and wife	Albion	Noble	
Teagarden, Geo. W. and wife	Orleans	Orange	1908
Terry, W. C. and wife	New Ross	Montgomery	1908
Thomas, John L. and wife	Pendleton	Madison	
Thomas, John and wife	Marion	Grant	
Thomas, W. D. and wife	Connersville	Fayette	
Thomas, Sylvanus C. and wife	Marion	Grant	1906
Thomas, S. R. and wife	Willow	Hancock	1908
Thompson, R. L. and wife	Topeka	Lagrange	1904
Thorpe, E. R.	Washington	Daviess	
Troop, Prof. James and wife	Lafayette	Tippecanoe	1884
Troth, R. A. and wife	Orleans	Orange	1902
Trueblood, Jesse D. and wife	West Lafayette	Tippecanoe	
Tryon, Frank N. and wife	Albion	Noble	1906
VanKirk, Miss Myrta	Lagrange	Lagrange	1903
VanKirk, R. E.	Lagrange	Lagrange	1908
Van Winkle, V. L. and wife	Scottsburg	Scott	1908
Waltman, Wm. M. and wife	Bean Blossom	Brown	1903
Walton, Wm. M.	Laporte	Shelby	1908
Webster, J. A. and wife	Mishawaka	St. Joseph	1906
Wells, Merit	Indianapolis	Marion	1901
Wemple, E. C. and wife	Valentine	Lagrange	1903
West, Jas	Warren	Huntington	1908
Widney, H. M. and wife	St. Joe	Dekalb	1904
White, John T. and wife	Connersville	Fayette	
Whipps, Jas	Carlisle	Sullivan	
Williams, Samuel T. S. and wife	Knightstown	Henry	1885
Williams, W. A. and wife	Rome City	Noble	
Williams, D. A	19 S. Del., Indianapolis	Marion	
Williams, E. H. and wife	Indianapolis	Marion	1906
Wilson, George S. and wife	Indianapolis	Marion	1908
Wilson, Theo. and wife	R. D. 29 Fountain Sq.	Marion	
Woollen, Wm. Watson and wife	Indianapolis	Marion	1902
Woodbury, Prof. C. G. and wife	Lafayette	Tippecanoe	1906

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Name.	*Postoffice.*	*County.*	*Year.*
Yoder, Meno S. and wife	Shipshewana	Lagrange	1908
Yoder, W. H. and wife	South Bend	St. Joseph	1906
Young, W. S. and wife	Franklin	Johnson	
York, E. E. and wife	Plainfield	Hendricks	1906
Zimmer, H. I. and wife	South Bend	St. Joseph	1906

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PROCEEDINGS

OF THE

SUMMER MEETING

OF THE

INDIANA HORTICULTURAL SOCIETY

HELD AT

Centerville, Ind., August 4, 1909.

The midsummer meeting of the Indiana Horticultural Society was held at Centerville, Indiana, on August 4 and 5, 1909. The meeting was called to order at 1:30 on the afternoon of August 4th, by Vice-President Charles N. Lindley, of Salem, Indiana, President W. C. Reed not being present. Rev. Hursh opened the meeting with prayer, which was followed by a piano duet by Miss Teas and Miss Kersey. Following this, Honorable Jesse Stevens, of Centerville, made an address of welcome, in which he extended the right hand of fellowship to all present, and said that no other organization had done the good that the State society had done for Centerville, and that its influence had radiated, and that he was welcoming this organization to the city of Centerville in the spirit of the father who welcomes home his long lost child. Vice-President Lindley responded to this address of welcome.

Prof. W. R. Lazenby, of the Department of Horticulture and Forestry of the Ohio State University, gave a talk on Some Profitable Garden Crops, in which he said that Horticultural societies in general had made a mistake in not giving more attention to garden crops, and that on this account they had lost the co-operation of the market gardeners. He stated that he had no startling successes to be chronicled, but only ordinary garden work. He first mentioned the crop of asparagus, which should be grown on good, rich soil. He spoke of some which was cut the third year and has been cut every year since for eighteen years. With asparagus not much cultivation is necessary. He stated that he believed that in getting asparagus ready for market, rubber bands should be used for bunching, and, after

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bunching, it should be placed in shallow pans of water. He said that, compared with the amount of labor which asparagus required, the returns were very satisfactory. Some gardeners plant staminate and some pistillate, and the former will yield about forty per cent. more asparagus than the latter. He advised planting thick and thinning out the pistillate plants. His theory was that if you mulched with manure in the fall, and used salt freely, it would help in keeping down the weeds.

In regard to potatoes, he advanced the idea that they should be manured heavily in the fall and then plowed. He stated that he had tried other varieties, but had always come back to the Early Ohio. As for treating potato seed for scab, he did not think it necessary, as he stated that good seed did not need to be treated, and that treated seed would not grow as well. He said, however, that if you used scabby seed you should treat them by all means, but to avoid using them if possible. He advised using twelve bushels per acre, planted with a drill two feet apart, eighteen inches in the row, dropped by hand and covered with the plow. For the first cultivation he liked the smoothing harrow. Potatoes should be planted early in March, if possible, as he stated that he had never succeeded with late potatoes, on account of leachy conditions.

He then took up tomatoes, and spoke as follows: Tomatoes set roots very readily. I do not want my plants to be tender, so that they will break, but would rather have them stronger. I plant them in a slanting position in the soil, and plant a good portion of the stem, say one-third of it, or sometimes perhaps more, and if you will examine the plant in a few days you will see that roots have been thrown out all along, and there will be a fine root system for the tomato plant. I would not advise anyone to go to extremes either way; that is just the mistake that is often made. We sometimes think that if a thing is good, more is better, but there is such a thing as getting too much of a good thing, and there is a law that is always in operation called the law of diminishing returns. I would like to illustrate this in this way. We know that a certain amount of food is good for us and that it gives us strength, and maintains our strength and keeps us perfectly well, but if we eat more we do not feel so well, and if we eat still more we become diseased and sick, and if we still continue to eat more we would die, although we have been eating good food all the time. We exercise a certain amount to make us strong, but beyond that point it will make us weaker, or in other words, we reach the law of diminishing returns, or the point where it comes in. We must be careful that we are getting enough returns from our work to warrant our continuing it, for we must not reach the place where the law of diminishing returns comes in. We are not likely to make an error on this side, but we can go

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beyond the limit of profitable labor on the farm, and we should be careful not to do that.

We plant tomatoes very carefully, trying to get one stem. We set them in rows about four feet apart, eighteen inches in the row. That is rather close, perhaps, but if they are trained to one stem they will get plenty of room, but if two stems are left they should be farther apart.

Now this matter of training tomatoes is very simple. All you need is to pinch out the side shoots, suckers, so called, and if you will pinch these out and keep all of the blossoms on one stem, you will get a very much earlier fruit. If you train the single stem it will have to have some support. Now what is the best form of support for the tomato? We have found that a very simple trellis answers the purpose, and we simply take wire—ordinary fence wire—good, strong wire, and support these on water pipes that we pick up, for we have always found enough around our place, which we cut into posts and drive into the ground and twist the wire around the top, and use lath. Sometimes we can pick these up, too, around our place, that someone has ordered and did not use, and other times we have to buy them, but we find them very satisfactory, about as much so as anything we have ever used. We use a brad-shaped tack, or something like a staple, and tack these lath to the wire. Now you have a very cheap trellis that will last for years. We are using the same wire, posts and lath that we have used for the last six years at least. Of course some of them may get broken, but most of them will not and they are in good form and easy to put up. You will have to tie the plants to the lath perhaps two or three times during the season, and that is all there is as far as the training of the plant is concerned. But what about the advantage? Besides getting earlier fruit you get it free from the ground, and in our soil if we allowed the plants to grow on the ground if we picked our tomatoes after a rain we would have to wash every one. Now, excepting those that grow very low indeed, they are not soiled at all, and we can see every tomato that is in good condition to pick, and we do not have to stir up the vines. There is all the difference in the world between the old and the new methods, and I believe if we did not get a single pound more of tomatoes from the trellis and did not get them eariler, I would do it simply from the ease and convenience of picking and handling. You know how it is to go into the tomato field on a wet morning, when all of the vines are tangled up, and the tomatoes are on the ground, muddy and perhaps rotten. If there is anything that makes the boy sick of gardening it is work of that kind day after day, for it is not very attractive work. I have picked tomatoes a few times and I find that it is not very attractive work, but the work is very much lighter when the tomato plants have been framed up

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in this way. If you are raising tomatoes for market I think this is the way to raise them. I guess I do not need to dwell on this longer. Last year we raised about one thousand bushels of tomatoes, but I don't believe I can tell you off-hand just what the average price was, but I am rather certain that it was over eighty cents for those thousand bushels; but I know that one day we picked thirty bushels and took them in our express wagons and went to the commission man and got his check for ninety dollars. This makes a gardener feel pretty well, to get a wagon load of vegetables like the tomato and get $3.00 a bushel for them. Some sold this year for four dollars, but they dropped very soon, for they could not keep that price, and we got $1.50, $1.00, $0.75 and then $0.50. We make it a rule not to sell tomatoes for less than fifty cents, for we can keep them and take the seeds and make more out of them than we could to sell them at that price. It is a very easy matter to have a few barrels in the tomato patch and throw the tomatoes in, and do not put water or anything in, and they will soon begin to ferment and soften. After you have got the barrel about two-thirds full stir them up thoroughly, and if you have it, water is a good thing to pour in. Now the pulp of the tomato will be softened by fermentation, and there won't be much left of it, and the seeds will go to the bottom, and you can drain off the seeds. You will have to dry them, of course, but that is easily done upon a few simple frames. Tomato seeds can be kept very easily for any length of time. You do not have to sell them the same year, for they will retain their vitality a long time.

Now I would like to say a few words about rhubarb. We have done a great deal in forcing rhubarb in the winter, and very early in the winter we begin to put the rhubarb in a dark cellar, not a greenhouse, but just a cellar, or a room in the cellar that can be perfectly darkened, where the temperature will not be too high or too low, but in an ordinary cellar which can be kept at a temperature of from 55 to 65 degrees, or around there. Now, all you have to do is to have the roots in such a condition that you can put them in the cellar in the winter time. We take the roots up before there has been any damaging frosts, but they need some frost to make them develop well, for they will not develop until it freezes, and you have to wait until it is frozen or has been frozen. We usually do this the latter part of November or the early part of December, and we take out the first crop a little before Christmas time generally. We put this in the cellar and put just a little dirt around it, but usually enough hangs around the roots, and we set the plants just as close together as we can, and in about eighteen or twenty or twenty-one days we will have rhubarb for the market, for it shoots up wonderfully quick. You have no idea if you have the cellar perfectly dark how quickly it will shoot up, but it will be perfectly

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white, with no color about it. No leaves will develop—nothing but the stem. You know that no green matter will develop except in the light.

Well, at first we thought this was just the way to raise it—that is, in perfect darkness—but we have since learned to let in a certain amount of light, and the way to do this is to put papers over the windows—just the ordinary brown paper—and if one thickness lets in more light than you like, use two thicknesses, and when you do this you will have a nice pink color which is found much more attractive, and the top part of the leaf extends a little bit higher. You know that people hardly know what to think about rhubarb without a top, and they think that something must be wrong with it. You will find that there is a great demand for this pinkish looking rhubarb. We had just one small room full, but we refill it just as soon as we take the old roots out. We can continue this just as long as we have roots, for you must remember that it only takes about three weeks to do all of this, if the conditions are just right.

We thought at first, also, that we would have to use old roots, but now we use young roots for the purpose, and for this purpose we sow the seed in the spring and take up the roots that fall, and we find that they give the best results. At our State Fair last fall, which was the last day of August and the first few days of September, we exhibited some of the rhubarb which we had planted something like the 15th of April, and actually the stems were over two feet long, and the leaves were eighteen inches, and the people could hardly believe that this came from rhubarb seed that had been planted in the spring. I invited these people to go and see the plantation. This just shows you how easy it is to grow. It is a very easy thing to grow and the beauty of it is that we can take up every other root or every other row, leaving all we want to to develop. We liked this method. Why? Because you have just one large stem the first year, with little tendency to branch, and they do not take so much room in the cellar, for you can put another root in very close, and of course they will only send up one or two or three stems from the one root, but they will be splendid shoots, and don't you see how many you will have and how easy it will be to handle, and how often you can pack that cellar? We found this extremely profitable.

DISCUSSION.

Joe A. Burton—Do you stand the roots up in the cellar or lay them down?

Prof. Lazenby—They are stood up. In our soil some of the dirt will stick to the roots, and we never try to shake it off.

Joe A. Burton—Are these roots thrown away when you take them out?

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Prof. Lazenby—Yes, they are completely exhausted.

Joe A. Burton—Wouldn't it be just as well to cut the root off not more than three inches below the crown to get it out of the way?

Prof. Lazenby—Well, I think it is just the same to cut off the tapering end.

Joe A. Burton—Why not cut it all off?

Prof. Lazenby—When in the cellar all of the substance from the root goes into the new growth. If you were planting out of the cellar it would be different, for you get a leaf that will manufacture food for itself.

Joe A. Burton—I know in planting out of doors it is better to cut the root off.

Prof. Lazenby—That wouldn't do in the cellar, for you want just as much of the root as you can get.

A Member—You did not tell what variety of tomato you use for your early crop.

Prof. Lazenby—We do not use any early variety, for we think that our tomatoes are much larger when we use a standard variety. We make an effort to get plants early, and we use the Stone and the Beauty for our early tomatoes. We have used a number of varieties, however.

A Member—Have you ever used the Success?

Prof. Lazenby—I have never used that.

Mr. Ritterskamp—I think it is an improvement on the Stone. Now, as to potatoes, you did not give the distance between the rows.

Prof. Lazenby—About two feet—well, just space enough to cultivate, for it is not necessary to leave more space than that.

Mr. Ritterskamp—I don't believe we have ever tried as extensive seeding as you spoke about. You plant eighteen inches in the row and we plant twelve. The Ohio will set only three or four tubers from each sprout. I don't think it would be safe in the Rose class and probably in the Irish Cobbler, but in the Ohio the heavy seeding would be preferable.

A Member—Possibly it would. We can use more seed on the rich ground. I think it is a mistake to use too much seed with the ordinary ground, for usually the richer the ground the less the seed, but with the potato I am inclined to feel that that it is an exception to that rule.

Mr. Eickoff—You have given the important points about preparing the ground for the potato, and sowing the seed, etc., but you have said nothing about the potato planter.

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Prof. Lazenby—If you are planting on a large scale it would be all right to use the planter, but we don't plant on a large enough scale for that.

Mr. Ritterskamp—Then you plant by hand?

Prof. Lazenby—Yes, sir.

Mr. Ritterskamp—Do you like it better?

Prof. Lazenby—No, sir, not if we were planting five or six acres or more, but for only one or two acres I don't think the planter pays.

Mr. Ritterskamp—Have you ever tried sprouting your seed under a bench?

Prof. Lazenby—Yes, sir.

Mr. Ritterskamp—We have found that we can make them better in this way.

Mr. Roudebush—Do you use home-grown or northern-grown second-crop seed?

Mr. Ritterskamp—That is a large question. We try to get the earliest potatoes from the potatoes grown at home from the seed from the north—grown one season at home—from the seed that is purchased from the Red River Valley. We get earlier and slightly increased yield from the seed from the north, invariably. Last year I got my second crop of Ohios planted as late as the 10th of July, after another crop had been taken from the ground, and those potatoes did not turn off one-half as much as seed from the Red River Valley, but why, I do not know. The seed was perfectly sound, and only shot one terminal sprout, and that a heavy one. Now perhaps the drouth had something to do with the yield of the potato, for there was not one-fourth of a crop.

Mr. Roudebush—My experience has been that the yield is larger from home-grown second crop.

Mr. Ritterskamp—Our growers think they can get earlier crops from the home-grown seed if they change from the northern seed for the next year's planting.

CAN INDIANA FRUIT GROWERS COMPETE WITH THE PACIFIC COAST?

Mr. Lowell Roudebush, New Richmond, Ohio.

Can Indiana fruit growers compete with the Pacific coast? Certainly we can; we can compete with anything. Didn't the Wise Men come from the East? Can the river rise higher than its source? Those people on the

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Pacific coast have neither conditions or environments that are superior to ours, and the only difference between them and us is that they have seen things while we have slept.

Now, what are some of the essentials in successful fruit growing? Let us reason together for a short time. Why, the first consideration is a market. It makes no difference whether you have no insects, how good your soil may be, or whether or not you have good facilities for transportation, if you cannot sell the productions of the soil; if you cannot sell your handiwork, your second condition is worse than the first. There are no other states in the Union that have better facilities for marketing at home than Ohio, Indiana and Kentucky. We have a series of great trunk lines crossing our states that converge, and we have people on the north of us and people on the south of us, on the east of us and on the west of us, and all around about us that like fruit, and if we will supply it properly handled it will be profitable for us to grow it. Ohio and Indiana have more high-priced laboring men within their limits than any other two states in the Union, and I would not give a well-paid laboring man as a customer for three millionaires. In the first place he has an appetite, and in the second place he spends on his back and his stomach about 95 per cent. of his gross earnings, and he is therefore the best customer to have. Then, again, he is here at your door.

I have already said all that I care to about transportation, but let me illustrate the necessity of it. I have been doing farmers' institute work down in Kentucky, and while I was down in the mountains a man said to me that it was no trouble for him to grow fruit, but that it cost so much to market it. While I was in a little town down there I saw two men coming into town on horses, or to be plain about it, on mules, and I noticed that each of these men had a sack of something on behind him, and I suspected that they had peaches, and upon investigation I found that I was right. They lived eleven miles away, and when they started from home they were supposed to have a bushel and a half each, in each of their respective sacks, and they were peaches that in their proper condition would have brought a dollar and a half a bushel, and they only brought the magnificent sum of fifty cents per bushel, and really, they were not fit for old-fashioned peach butter. But the only way that they had to market their peaches was in that way.

Now let me call your attention to another fact. I found that one of these men had something like two hundred trees, of various kinds, and his neighbor had not so many, and they lived only two miles and a half apart, and one of them hadn't had a failure in seventeen years, and the other in eleven. But now suppose that these men had magnificent crops each and

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every year, what would it avail them? Would there be any profit in it? So one of the great problems of today is the transportation of your crop. You may have a market, and it may be good, but if you can't get to market with the product of your hands and of your brain, what value is it?

I do not like to differ from our great philosopher and statesman, who said that there is no one so far from market as the man who hasn't anything to sell, but I fear that I shall have to, for there is no one so far from the market as the man who cannot get there with his products—the products of his hands and brain. What does the man care for the market that hasn't anything to sell? Of course he doesn't care for the market. I don't care anything about the market for lions, for I don't raise any; and I don't care about the market for eagles, for I do not raise any of them, but I have a California friend who is raising them for us tenderfeet, and who pays fabulous prices for them.

Well, what else? We must have a fertile soil. From my boyhood I have heard my father tell of the wonderful soil that you have in Wayne County, and in certain of the northern portions of Indiana, and how progressive and intelligent the citizens were, particularly of Wayne County, and I have also heard him tell of the Underground Railway, and other things that interested me when I was a boy.

Now you have the soil. That is the important thing. No plant or animal has the inherent or natural ability to make something out of nothing. Did you ever think about that? We had one man in our county—you will have observed from my name that I am of Dutch descent, but I am not a German, and my ugliness is just like the beauty of the Pacific Coast apples, only skin deep—who said that he wanted to get a wife that could make something out of nothing. I wonder if he succeeded?

It has been my observation in Ohio that some of the farmers set out an orchard and then let the trees "root hog or die." Now that is just the way some people handle their orchards everywhere, and some of them also turn their colts out into the back pasture and let them fight it out with the flies.

You have the soil in Ohio and Indiana, but you are not getting the splendid results and the beautiful apples that might be expected, and you seem satisfied. Your great grandfathers and your grandfathers planted their orchards, and your father planted his orchard in the most fertile section of the farm, and of course they had apples because they didn't have anything but the curculio to bother them. Do you know that some of the greatest orchard sites in the West on the Pacific Coast are on absolutely level land? Now, then, why not take up the level counties of Ohio and grow apples there? I recall one county—Darke—and if you talk anything else up there but tobacco and corn they will laugh at you, and yet one of the most

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profitable orchards in Ohio is in Darke County. It is on a little elevation only twelve feet above the surrounding country. I say that they get splendid results off of these level sites. My father said that when he first crossed this country in '43, you had to lay down and look to see which way the water would run. These places make the best sites for small fruit in the world. It has been my observation in the West, on the level land you can have just as good averages in the main as they have on the hills, because the tree is usually on the wrong side of the hill and you get the wrong conditions.

I said that the wise men came from the East, and that nothing can rise above its source. What is the matter with Ohio and Indiana horticulturists? They are all in the same boat. We breathe Indiana air when it comes from the west and southwest, and you breathe the Ohio air when it comes from the south and east and northeast. What is the matter with the horticulturists in Ohio and Indiana? They are just as intelligent, just as honest, and think just as much of the practice of the Golden Rule, but a great many forget all about it in growing fruit and in handling it. Ohio and Indiana have been growing fruit for over a century. My grandfather settled at Bryan Station in Kentucky in 1795, and in 1799 they had a little peach orchard and a wonderful crop of peaches. The soil was fertile and there were no insects and fungous diseases like we have today, and all they had to do was to set the trees out and let them grow, and there was a man up there who did the work—the good Lord did it all. Even the codling moth came from the Eastern States, although it came originally from Europe. Now the soil is less fertile. The seasons do not change, and natural conditions and environments are similar, but the fertility passed away and the fungous diseases and insect pests came, and we said that something was wrong, for we couldn't get apples like our grandfathers used to grow. We grow fruits today under different conditions. Are you farming and cutting your wheat like grandfather used to do it? He used a sickle. I have one at home that I used this year around the corners; but I'll tell you I wouldn't want to cut all of my crop with that sickle, and it is a good one, too. Do you handle and treat and cultivate your crops as your grandfather did? You have changed your methods with the changed conditions of soil and the advent of the insects and all of these things. The trouble with us as compared with the Pacific Coast is that when they first set their orchards they set them in the original soil and the same conditions prevailed there that prevailed here seventy-five or a hundred years ago. They had no insect pests. I will make this statement without fear of successful contradiction that in these Western States they now have more insect pests and more fungous diseases than we have here in this country.

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save in a few isolated places. In short, the Pacific coast has only one advantage over us, and what is that? All of these famous valleys—and, by the way, some of them are no larger than one township in Wayne County—are on the middle or median line of the Cascades, and they always have plenty of sunshine and not too much moisture. The laboring man declares that it rains thirteen months out of the year west of the Cascades, while on the other side they do not have any rain at all. They can spray their trees and not have everything spoiled by climatic conditions.

You hear a great deal about their soils out there, but I would not give up Wayne County soil for any of their soils that ever existed for the growing of fruit. What is the matter with their soil? It is out of balance. It contains a good deal of potash and phosphorus, but it is short in humus and nitrogen. These fellows will not tell you in their booklets and circulars how much nitrogen they are buying. Of course they wouldn't tell you that.

Now what do they ask for the land on which they can grow fruit when it is in the rough? The professor here thinks that I tell pretty big stories. I tell you that you cannot buy the so-called fruit land in the West or Southwest for less than one hundred dollars, and many pay one thousand dollars per acre, and a few people ask two thousand dollars for the land in the rough. Now I am telling you the absolute truth, and you will find that I am if ever you go out there. I met a friend at Glenwood Springs who was going west—out to Washington—to buy some fruit land. I asked him how much money he expected to invest, and he told me about fifteen hundred or two thousand dollars, and I told him that he would have an acre or perhaps an acre and a half. But we will not talk about this further.

Now what other advantages do they have? Their trees come into bearing very early. But how long do they live? This reminds me of the fellow with the sick horse. He started to town for some medicine and saw his neighbor John over in the field a short distance away, and he remembered that he had had a sick horse, and he said, "John, what did you give your sick horse the other day?" John answered back, "A pint of turpentine." The fellow went on seven miles as hard as he could ride, saying all the way, "A pint of turpentine, a pint of turpentine," and got the turpentine and went home and gave it to the horse, and the horse died. A few days afterward he saw his neighbor John, and he said to him, "That turpentine killed my horse inside of an hour," and his neighbor replied, "It did mine, too." The turpentine is in the early bearing. Now how long will the trees live? Now some of our growers here find that their trees are just in their prime at twenty-five or thirty years, if they have not been starved to death. In the West I failed to find among their trees—and I make this

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statement without fear of successful contradiction—a tree in the State of California or Washington or Oregon that was twenty-five years old. Most of them die at about seventeen. They overdo the matter, and hence we have that advantage.

Pacific coast states have no local market. They have no market whatever for their seconds and thirds (and that has been our undoing, because everything sells here), and that has developed their wonderful skill, and their apparent great honesty in the handling and growing of their fruit. I have seen ninety-five per cent. of a crop of apples lying on the ground, and they didn't even have hogs to feed them to. Why was this? Simply because this man put on a little too much water and did not have the color that they require, and only five per cent. of his apples were packed. They didn't even make them into cider. Now this is just the secret of their success, and the reason that we fall short in Ohio and Indiana. Fruit growers in Ohio and Indiana have been dishonest, and so have the men in New York, and they have put apples on the market that they should be absolutely ashamed of. You first want to create an appetite for your fruit, for that is what you must have, a first-class appetite. Now these people in the West have learned that they must be organized, and they are organized, and the New York people have found out that it is necessary for them to be organized, and they have formed the Apple Growers' Association. A grower never picks and handles his own fruit. The association furnishes experts.

Let me tell you about two people that grew fruit. One was a man who was very particular, and did everything just when it should be done and as it should be done, and when the inspector came along he passed ninety-five per cent. of his fruit, for it was absolutely free from insects, was good in color and of a certain size. Now the other man was not so careful and got on a little too much water, and what was the result? He only had five per cent. of his apples accepted. He was terribly sore about it, too. Why were they so careful? Let me tell you. I saw sealed bids from every civilized and half-civilized country on the globe, that had been sent there for apples. What did they do? When a man's apples are packed his name and address is put on the inside of the package, and on the outside is the name of the organization. Now what did I see in letters that came from Germany and England? "John Smith's fruit did not keep well." Now, the association went after this man and found that he put a little too much water on his fruit—you know it is an easy thing to water stocks, but it is a dangerous thing to water them too much.

The inspector not only tells them when to spray their trees, but how to spray them. Under the laws of Washington and Oregon it is a misdemeanor and a heavy fine or imprisonment, or both, to offer for sale a wormy

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Photo by C. G. Woodbury

Fig. 2. A $3.00 box of Oregon Apples and $3.00 barrels of Indiana apples. The home grown fruit was small because not thinned, was poorly graded, poorly sprayed and not well packed. Whose fault was it?

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apple. Goodness alive, wouldn't it be hard on the Indiana growers if that law were in effect here?

It costs the people from the West more to land their fruits in our markets than with the best improved, up-to-date methods it would cost us to produce the fruit, and then talk about the horticulturists from Ohio and Indiana not being able to compete with the Pacific coast. It is up to you. What will you do?

You must select a variety, and then cultivate and prune and spray better than you have ever done before, and for goodness sake, handle your fruit better. It is not all easy sailing, for I never was treated so in my life as when I began spraying. My family, even my mother, turned against me, and thought that I had gone crazy, but when I had six crops of plums my mother had to acknowledge they had two in forty-five years, and the scales began to drop from her eyes. My uncle said that he thought I was crazy before I went west, and now he knew I was, because I sprayed. There has been more spraying done in my county in the last three years than in all the years put together before. They are handicapped on the Pacific coast because their fruit does not compete with ours at present, for, as I said, the beauty of it is only skin deep, and they taste about like pumpkins, but anything that looks pretty is taken as being good, and that is why I sat on the fence for twenty-five years and watched the girls go by.

What else are the people in the West doing? They are overdoing the matter in planting. If you don't naturally like the business of fruit growing, don't go into it commercially, for you will not be a success, and can't make money. Raise only fruit for your own consumption if you don't like it. If you like it, roll up your sleeves, select the best varieties, take perfect care of them, get into an organization, and you can sell your fruit at your door at remunerative prices.

I want to say in conclusion, that it is up to you; it is up to you. What are you going to do?

I thank you for your kind attention.

DISCUSSION.

Joe A. Burton—Now if I had been given the subject that Mr. Roudebush had to talk upon, I would have talked just as he did if I had known how, but I can't do that, and all I can do is just to throw out a few little hints along some lines that I do know something about.

I can remember, and possibly some of you can remember, when Wild Goose plums were in great demand at four dollars, and today they will only bring fifty cents in the open market, and the plums today are just as good as they were when they sold for more, but the people have found out

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that they don't want Wild Goose plums. I would like to ask Mr. Hobbs if he has as many calls for Wild Goose plum trees now as he used to?

Mr. Hobbs—Not so many as when they were selling at four dollars.

Joe A. Burton—People got tired of them; they didn't like them, and we can't sell them in our community, and can hardly give them away. I can also remember when the Ben Davis was the apple of apples until some meddlesome fellow—or perhaps it was a woman—found out that it was not so very good tasting, and they told someone else, and that someone else told someone else, and finally it got all around that the Ben Davis was not very much good. But we plant Ben Davis, and why? I told you that all of the people wouldn't stay fools all the time, and that they wouldn't buy Ben Davis apples. I have been selling apples for some years. I will tell you honestly, for I always tell the truth, we have never had to exceed a dozen orders for Ben Davis apples yet. What is the difference? Now this season we have had only one person ask anything about the price of apples, but they simply say, "Please book me for so many apples," and they never ask the price, because they know it will be enough, whether there are any apples or not.

Now what has all of this to do with the subject that is before us? You could get five dollars for Grimes before you could get one dollar for Ben Davis apples. The people in the West and Northwest grow beautiful apples —more beautiful than our Ben Davis ever was—and you know that the Ben is a fine looking apple. I have heard it told that these people out there get as high as fifteen hundred dollars an acre from their fruit.

Mr. Roudebush—I have seen several orchards that brought twenty-two hundred dollars, and one that brought twenty-five hundred dollars. Ninety-five per cent. of their apples were A 1.

Joe A. Burton—I understand that they are making enormous profits, and I know that a great many people rush into the fruit business to make money. One of my friends from the West told me that there had been planted around Spokane one hundred and sixty-five thousand acres of peaches. What will that do? You know that the people out there have been getting enormous prices for their products, and so many trees will naturally bring down the price and people will find out that beauty is only skin deep. I fear those people will have to hunt for a market.

Now we grow Indiana apples, and at the present time we do not have to hunt for a market, but the market hunts us. Now, in regard to the organizations for handling the fruit. I don't want to belong to an organization, for I want to sell my own apples, and if I want to sell wormy apples I want to sell them for whatever I can get. In selling our apples we don't

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guarantee anything but satisfaction, and if a man gets that I don't see how he can complain. We don't require an organization and we don't want one, and for my part I want to handle my own fruit.

Mr. Roudebush spoke of the expense that these people in the West are put to in order to market their fruit. We people could get rich here at the prices they get, but their expenses are so much greater than are ours. The apples from the Northwest are certainly more beautiful than we can grow, but the quality is not there, but the quality of ours is so much better that we can demand the market, and command the market. Now it is out of the question to grow enough to overstock the market. A good quality of apple may cause an inferior quality to lie and rot, but there will never be an over-production of good apples. I remember a couple of years ago we had quite a lot of Grimes Golden in Bedford and there was a carload shipped in of another kind, and that carload sat there and rotted, and they were from New York. They were Maiden Blush apples, but when the people could get Grimes Golden apples they would not buy the Maiden Blush. That was a case of the apple market being glutted; but no difference, the good apples will sell, and it would be hard to tell how many we could consume.

We used to have a banker in our town that had about everything he wanted, and I asked him one day if he wouldn't like to have a barrel of Grimes for his family, and he told me that he would not take a barrel, but that he would take a bushel if I would sell them to him, as he explained that he could not use a barrel. I told him I would send the barrel over and inside of two weeks I would send over to the house and take away all of the apples that they hadn't used, and he was perfectly agreeable to that, so I sent the barrel over, and in only a week afterward he saw me on the street one day and said, "Joe, can't you bring me over another barrel of Grimes?" That is the way the apples will do. People will soon learn the quality of the Western apples and their sale will stop just like the sale of the Ben Davis.

I don't know what they do to raise apples, but I know that we can improve our apples. I know that good apples can be grown in Indiana at a wonderful profit. I think people should grow enough apples so that the children will have them to eat every winter.

Mr. Ritterskamp—I would like to ask Mr. Burton if he packs apples in barrels or boxes.

Joe A. Burton—It takes skilled men to make barrels, and we can get girls to make boxes, and outside of the cost of making I am not sure that we would use the barrels, for we can have boxes any size we want, and we

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Photo by C. G. Woodbury

Fig. 3. Well faced barrels of Indiana Winesaps. Many believe that the honestly packed barrel is a better package for Eastern fruit on Eastern markets than the box.

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find that there is more of a demand for them. The larger dealers might prefer their apples in barrels. I think the grocerymen prefer the barrels, for they keep the apples in better condition, because the sides will not burst in. I don't believe the boxes should be put up just for show, but there should be some merit in them. I sent some apples to Spokane last year, and this spring, early in the spring, they wrote to me and asked me to make a few criticisms, and make suggestions, and as I was asked to do so, I felt perfectly free about doing it. This is the letter that I received from them:

"SPOKANE, WASHINGTON, July 27, 1909.

Joe A. Burton, Mitchell, Indiana:

Dear Sir—We think you will find that we have adopted, as far as possible, your suggestions for improvement of the National Apple Show this year. We have adopted the scoring rules of the American Pomological Society, wherein quality is the first consideration. This is the point you emphasized.

The rules also cover your other suggestions about fruit against fruit and package against package, as thoroughly as possible.

We thank you for these suggestions, as we are confident they will improve the show and make our exhibitors feel that they are placed upon a fair basis in open competition.

Yours very truly,

NATIONAL APPLE SHOW (Inc.).

REN. R. RICE."

Now, last year I know that in their showing the boxes cut more of a figure than the apples or the quality, and my son, who was at Council Bluffs, told me he saw boxes there that cost as much as fifty dollars, and I object to making a show against such people.

I do not want to take more of your time, for all of you know what I think about apple growing in Indiana. There is no better place in the world than right here, and I have told my people that the only objection I had to dying was leaving my orchard.

(Applause.)

Mr. Ritterskamp—I would like to have a little statement from you, Mr. Burton, as to the cost of producing Jonathans and Grimes for fifteen years —what would the cost be per bushel?

Joe A. Burton—Well, I couldn't answer that scientifically, only just guess-work, but I should say that with fifty cents a bushel for Grimes you would be getting more out of your ground than raising corn or wheat or hogs. But I will not sell them for that when I can get two dollars.

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A Delegate—I would like to ask Mr. Roudebush what varieties of apples he would grow?

Mr. Roudebush—I make it a rule never to say very much about varieties. I suspect that the Grimes in this latitude and character of soil does well. The Jonathan, also, and I guess I would grow a few Ben Davis. We like the Rome Beauty. It is just as good as the Baldwin in quality.

Mr. Burton struck the keynote when he put quality above all other things, and then you have something that is worth fighting for. The reason some do not do better than they do is because there isn't enough in it, but I think that when you put a little in you get a little out, and some of these people think it is not enough.

The question of variety is a large and local question, because soils play a very important part in the quality and color and size of the apple. I learned a long time ago that it is impossible to get something out of nothing. When you fertilize your ground you have to be careful what you use, and be sure that you are putting on what the ground is deficient in and not what it has an abundance of. So this is a large question.

Mr. Ritterskamp—Do you use commercial fertilizers for coloring your apples?

Mr. Roudebush—Yes; but the first thing that concerns us is what the ground needs, and I would not advise you to spend one penny for anything like this until you first know just what is needed. Be careful of these things. Raise good apples and you will create a market for them by your good apples. You must develop the appetite, and that is what you want.

Prof. Lazenby—There seems to be one thing that has been emphasized by all of this discussion, and that is the advantages and disadvantages that every section of country has, but I think you will find that there is hardly any section but what, if we study its possibilities, we can make a success. Now, of course, they have disadvantages out in California, but certainly they have advantages, too. I have spent a very little time there, but I am very much interested, for some of our students have gone there and have been very successful. Now the question of organization. There is a necessity, because they have to organize on account of their transportation, and as Brother Burton said, it is not a necessity here. It would be a hard matter to get the people to organize here, for it is not a necessity. They have certainly reached the place in fruit growing where it is a pleasure to grow it.

Now when we speak of the price of land out there we often think of it as a drawback, but I don't believe that it is necessarily so. Of course there is speculation there and that is one of the things that we want to avoid,

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but I find they sell their land there just in proportion to the interest it returns. If a piece of land returns a good interest on one thousand dollars, that is what they value the land at, and if it only returns an interest on five hundred dollars, they ask that for it; but I think this is the same everywhere, for that is the only good basis for reckoning values. As far as competition from the Pacific coast is concerned, I don't believe we need to fear it.

There was one thing that greatly impressed me with this Western country, and that is the wonderful concentration of the industries. If you go into one section of the country it is all plums, plums, nothing but plums; and then another section is pears, pears, nothing but pears, and I find it is growing more and more that way. It is wonderful what they can do in this way. You will find in the Santa Rosa Valley they have a great many cows, mostly Holsteins, as they want them for their milk. One section will be a poultry section; and don't you see how much better rates they can get for shipping their goods, for they can all ship together? I was perfectly surprised when I learned their charges for shipping, and also that their crates were returned free. In another section you will find nothing but grapes. In one place there is a wine reservoir that holds five hundred thousand gallons. That certainly impressed me when I saw it, as did this wonderful concentration. I was surprised to see the wonderful care that they bestow upon their fruits. Just as has been said, I believe there are just as good opportunities here. I think, for the amount of capital that is expended, you can get just as good returns here.

When I used to hear people speaking of the fruit ranches of the West I thought there were thousands of acres in fruit, but I found that the majority of ranches consisted of ten acres, although some have twenty. For the fruits, such as peaches, that cannot be shipped a long distance, they have canning factories right there. One of our young men went to California and has a ranch, and I was talking with him, and while he likes California and likes the climate and is doing well, yet he says that he believes he could do just as well here if he would put the same energy into the work. They have a great deal of trouble out there about their laborers, as everything is ruled by the unions.

Mr. T. J. Quick—I have been very much pleased with the discussion, especially with that part where emphasis was put on the better handling of fruit. I am especially interested in the growing of strawberries, but I grow other fruit, too, but not extensively, and I find that it pays to put up fruit in the most attractive style, and to be perfecly honest in putting up the fruit. I have established a trade in my home town and in the surrounding country which I can't supply, and my neighbors are growing berries and

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cannot sell them and they are a drug on the market, and they give me two cents more on the quart than the other growers. The reason is that I have put my berries in shape, and they are attractive and I guarantee them to be full measure, and they are of a nice even grade. For this reason I cannot supply the demand. I have tried to get some of my neighbors to grow their fruits like I do, but they think it is too much trouble, and so they grow their fruit just any way and put it in the dirty old boxes which they have used continually year after year, and these boxes are filled with all kinds of berries, big and little, and the result is that they have trouble in selling their fruit. So I have been very much pleased with this part of the discussion which recommends that we pay more attention to the manner in which we handle our fruits.

Joe A. Burton—I wish you could call out an expression from some of the people here as to just what they think about these things.

Secretary W. B. Flick—We would like to hear from Mr. Graham on this subject.

Mr. Graham—I don't know that I can say anything that would be of interest to the fruit growers. I have been growing fruit only a short time, for I have been teaching school, but I have also been trying to grow some fruit.

I feel that the last gentleman that spoke gave us the keynote to the ready sale of fruit. I have been very careful in preparing my fruit for the market, and I don't find any trouble in selling my fruit after I get it. We are very careful after we have grown our fruit to present it to the public in a clean and attractive form, and outside of this I don't believe I can say anything to you that would be of value to you. As I said before, we have practically no trouble in selling all of the fruit we have, but I have only a little plantation of ten acres. One of my objects in coming to this meeting was to talk with Mr. Burton about the Grimes. I have about fifty trees, and they are beautiful trees, but I have been troubled with the codling moth, and I have not been able to control them with the Grimes. They seem to be exceedingly tender. Is that the reason the codling moth like them, because they are good?

Joe A. Burton—No, that isn't the reason, for they work on the Ben Davis, too.

Mr. Graham—This last spring I pruned the trees, and I have attempted to keep them thin in the head because they became so dense, but still they are too dense.

Secretary W. B. Flick—Do you find a local market for all the fruit you can raise?

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Mr. Graham—Yes, sir, we have a local market for more than we can raise. Just since we have been growing we have been getting orders a year or two ahead, and it is simply because people like good fruit, and if there were ten people here who grew good fruit there would be no trouble in disposing of it. It just seems that the market expands with the advent of good fruit, for people eat it and like it and want more like it.

Now I would like to speak about the Keiffer pear. We produced quite a few of them—not many if you were speaking in a commercial way, for five hundred bushels isn't much to a commercial man—but we disposed of all of them without any difficulty, and we got from seventy-five cents to one dollar a bushel for them.

Joe A. Burton—I would like to say one word here. What we apple growers need, and I am an apple grower, is more spraying. The whole thing hangs on the spraying. Of course a great many other things help, but they are lost without spraying. I think we ought to emphasize more the necessity of spraying and of spraying properly, and I am sure that we will get better results. We have done more spraying this year than before, and our results have been much better than ever before, for the very fact that we drenched the insects at one time or another has made this so. We found a bulletin from Ohio with a mixture for Bordeaux, and when we inquired into it we found that it did not cost so much, and so we got it and didn't use as much of it as the Ohio people recommended, but perhaps if we had used more it might have been better, but it looks like a good thing. I would suggest that in spraying we try to reach all parts of the tree. There are other things we must do, of course, but if the spraying is neglected everything is neglected.

Mr. Ritterskamp—How often do you spray for insects?

Joe A. Burton—I only spray twice—once after the bloom falls and once about ten days later some would say, but I spray when the bloom falls and then again just as soon as the wind blows from the other direction. One spraying is enough if you give the tree a thorough drenching. We tried spraying one tree when it was in full bloom, and that was the only tree in the orchard where the coddling moths got in their work, but I accounted for that all right in this way, that the apples were in full bloom and the material reached the pistils and they were killed outright, and some of the stamens were knocked over the pistils and shut off the spraying from the blossoms, and there were some that hadn't yet opened out, and they opened out and made apples, but the worms got in and destroyed them, and this is the reason I object to spraying when in bloom, because it does too much harm.

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Prof. Woodbury—I hadn't intended to make any remarks until after supper, but Uncle Joe has opened this question and I think I'll say a word in explanation. As Mr. Burton said, we were very anxious to know more about some of these things. The ideal time to spray is just after the blossoms have fallen, right at the end of the blooming period. Of course we all know that with the apple all of the blossoms will not open on the same date nor as fast as some of the others will open. Well, what I was anxious to do was to take some of Mr. Burton's Grimes and try our experiment, but something came up and we were not able to take the matter up just at the right time in the way we wanted to. Mr. Burton has been in the apple growing business a great deal longer than I have been, but I haven't fully made up my mind in regard to the situation. In one experiment this spring at Mr. Hazelett's orchard we used a Bordeaux nozzle with a solution of arsenate of lead, only one pound to fifty gallons of water, which made the spray very cheap, and we used a high pressure, and we walked all around the trees and got in from under the middle and knocked some of the petals ten feet. This was just at the end of the blooming period. We haven't all of the results figured up. Mr. Hazelett invited people into his orchard two or three times to see if they could find a worm on the Yellow Transparents, in fact he offered a reward of five dollars if they would, but they didn't find any. Chris. King tells me that he is getting a little discouraged over his spraying, for he found twenty-three apples with worms this year, and he thinks that is pretty bad. I think when we get to that there is some hope for us.

We were wondering a while ago why the Indiana farmers did not plant more fruit when they knew that good fruit could be raised here and could be made a source of pleasure and profit. I think that the reason is this, that nine-tenths of the farmers do not know how to raise fruit. I have been studying orchard conditions in the State for the past three or four years, and I find No. 1 orchards in good soil where the climate is favorable and the owners are more or less interested in fruit growing. They meet in horticultural meetings and horticultural institutes or farmers' institutes, for they feel that they would like to get something out of their trees, but they don't know how to go about it. They will ask you such elementary questions as how to spray and what kind of a pump you use. This is the fundamental trouble. They would be glad to do anything if they knew just what to do. These people are looking for information and we have failed in giving this information, but we feel in better shape now than ever before to do these things. If there are ten people in a community who are interested and will let us know about it we will come into their community and bring our spraying pump and spend the day in that community and make up the different kinds of sprays and show them what

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machinery is necessary and show them how to spray the best we can, answer their questions, too, and help them all we can.

Mr. Ritterskamp—It is very easy to make a mistake when it comes to selecting a spraying pump. I got what I thought was a good one, and when I commenced to spray my potatoes I found that there was no discoloration of the liquid at all, and I found there was no agitator in the pump. Now, most hardware firms do not know anything about the pumps and they sell the one on which they can make the biggest profit.

Mr. Quick—I think we are beginning to strike the keynote right along. I find that people who have spray pumps do not always know about them. We found a couple of years ago that we had some San Jose scale in Columbus, and when the professor came and looked at it he told us we did have it, and a couple of men were appointed to look after the affair, and all of the trees were ordered cut down that were not properly sprayed. There was a gentleman living there close that owned a spraying machine, and he went all over the country spraying for people, saying that he could kill the San Jose scale all right, and he only had about fifteen pounds pressure on his pump. He said he could kill all the scales in Bartholomew county; at least he thought so. I have a pretty good sprayer, at least it ought to be, for I paid $28 for it. I was doing some spraying. I had some Carolina poplars that were very tall, and I intended making a derrick. This man came along and told me I didn't need any derrick for that and that he could spray that tree to the very top from his wagon, and I told him I would like to see him do it, and he got up on the wagon and used all the power he had and he got the spray nearly to the top of the tree, and that was the way he sprayed, without having any idea of what he wanted to do. If the people in the country can make their solutions they don't know how to apply them. All of my neighbors tell me that they haven't time to spray. After they have had spraying done in this way they find that they have as many wormy apples as ever, and of course they are disgusted and think there is nothing in spraying.

Joe A. Burton—Down in Harrison County I know of some people who mixed their material so thick that they couldn't get it through the sprayer, and then kicked about the sprayer because it wouldn't work, and we found it half full of lime.

Mr. H. H. Swaim—I want to emphasize the importance of Prof. Woodbury's remarks about their willingness to show the people of Indiana just how to spray their orchards. Some one asked me not a long while ago what the Experiment Station could do to improve their efficiency in the State, and I said that the thing for them to do was to get closer to the

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people, and I find that this is just what they are trying to do. The best work that this society has ever done in this State was its demonstration work. You know what an intense interest there was in it and the eagerness of the people for knowledge along these lines. And many of you know how the people came out to these meetings and how they stayed with us and asked questions, showing that they were deeply interested in the matter and wanted to learn. Now the experiment station is offering to help wherever the people are interested, and I believe it is a good opportunity.

Mr. Graham—I would like to ask one question. Do you have to have ten fruit growers who are interested or ten farmers interested in fruit growing?

Prof. Woodbury—Ten men who are interested in this work and feel that they want to know more about it.

Mr. Graham—The people around here who have farms say that they are so busy with the planting of their crops just when the trees should be taken care of that they can better afford to pay me for raising their fruits and go on with their farm work, but if some one would come into the community and demonstrate these things to them I believe they would become more interested and take the work up.

Prof. Woodbury—I would be glad to take this matter up personally with you.

Secretary W. B. Flick—What would it be necessary, if anything, for these men to furnish?

Prof. Woodbury—To guarantee a place to hold the meeting indoors in case of inclement weather and a place suitable for demonstration purposes. The horticultural department will furnish all of the materials needed.

Secretary W. B. Flick—I think the professor ought to have plenty to do, and I believe he will have.

Chairman Lindley—At least eight of our farmers have wanted to know by phone just how to make the Bordeaux mixture, and you know how very unsatisfactory it is to try to explain all of these things over the phone. I am sure that the farmers will be very glad to have the opportunity which the professor tells us about.

Prof. Woodbury—I believe that in telling how to spray, the ordinary man will not get hold of it right the first time, and our idea was to carry the demonstration right to them and let them *see* us go through the process and let them have an opportunity to talk with us and ask questions.

Chairman Lindley—You will find that in spraying you do not have such good success the first year as you will after that.

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Prof. Lazenby—In our State we have our summer meeting at some point where there is some distinctive crop which the members are supposed to be interested in, and we test some of the apparatus that is useful in the management of that crop. Our meeting last summer was near Tiffin, in the potato growing section, and we had a most interesting meeting. We also invited the dealers to come too and show what they had to show. A great many took advantage of this offer and we had a large exhibit, and I think it paid and increased our membership very largely.

I fully agree with Prof. Woodbury that demonstration is practically necessary, and I don't care how well you tell a man about how to do a thing it is much better to show him. We were lucky enough to get a great deal of money for this kind of work. It will now take the place of the farmers' institutes, but we will not give them up entirely. I think it is a good thing when it comes to the real technical work like spraying or budding or grafting or anything like that, and I do think we need these demonstration schools; at any rate we will give the matter a good trial for some years.

Mr. Snodgrass—I want to place emphasis on what has been said in regard to demonstration work. School teachers meet in convention each year and try to find out what the matter is with our educational system; the college professors do the same thing, asking each other what it is that is wrong with their methods of teaching, and the horticulturists should do the same thing, and should demonstrate. Send a boy to school until he masters the books and put him on the farm without any demonstration work and you will find that he won't be nearly the success that the boy is who has had the demonstration work. If we are going to accomplish anything let's go at it in the right way and do demonstration work. People over the State would like to learn to grow apples and other kinds of fruits and garden vegetables, etc., and so let's get down to business.

(Adjournment.)

WAYNE COUNTY AS A FRUIT PRODUCING DISTRICT.

Mrs. E. Pike, Centerville.

At the suggestion of one of your committees I have taken as a subject Wayne County as a Fruit Producing District, and it shall be my purpose to prove to you that Wayne County should and will be the great fruit section of the State.

Wayne County has occupied a prominent place in horticulture in the State since its early settlement. The pioneers of the county planted seeds of the apple, pear, peach, etc., at an early day, and there are trees now

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living in the county nearly 100 years old. These trees are still bearing fruit and are in fair condition, showing the adaptability of our soils to fruit culture.

Cornelius Ratliff and Andrew Hampton were among the first nurserymen in the State to grow grafted fruit, beginning about 1835. Since 1850 large peach orchards have been planted in the eastern part of Wayne County which equal in productiveness and profit any orchard of the size in the most favored regions of New York, New Jersey or Delaware.

Wayne County, yes, even Centerville, may be said to be the nursery from which the State Horticultural Society acquired its first inspiration, for the first step toward its organization was the selection of Lewis Jones of Centerville as its first president. His ability and success as head of the organization are well known to those of you who are charter members of the society.

The first thing to be considered in the planting of orchards is the soil. Varieties, propagation, modes of culture and treatment, protection, etc., are entirely out of place until the preparation of soil is attended to. In this matter also Wayne County is again especially favored, for the highlands, the dividing ridges between the Whitewater and Noland's Fork, and between Noland's Fork and the Greensfork and other high grounds not bounded directly by any of these rivers, but the whole practically including the entire county, are admirably adapted to orchards of apple, pear, peach and cherry.

Fruit growing, like farming, is becoming more and more a science, but the average farmer or fruit grower fails to put down the expenses incurred in careful tending to his orchard on the credit side of the book. He is too prone to neglect his trees under the false impression that they are old enough, like his children, to take care of themselves.

But after all people are beginning to awake to the opportunities which lie all around them, and the farmers of Wayne County are already beginning to realize that a good orchard well tended means money in their pockets, and best of all, a full cellar for the coming winter; and instead of planting a small orchard on two or three acres of the worst land they own, they set out the best trees they can procure on 15 or 20 acres of the best land obtainable. And besides the planting they are learning the art of obtaining the best rather than quantity regardless of quality.

That to my mind is at least approaching scientific fruit growing. That is what we predict for Wayne County.

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THE FOOD VALUE OF FRUIT.

Professor LAZENBY, Ohio State University, Columbus, Ohio.

Prof. Lazenby—Ladies and Gentlemen: I will not occupy very much of your time tonight. I believe that we are to have an illustrated lecture following this, which we certainly will enjoy better than just a talk without any illustrations.

I am a very zealous advocate whenever I have the chance to talk on the value of fruit as a food product. There are just a few things in this world that are absolutely necessary if we maintain a normal measure of health and strength, and one of these is pure, good air; another is nutritious food, and of course water to drink; another is rest, and another some form of physical exercise. It doesn't make so much difference what it is, but I think to be healthy we have to take some physical exercise. Another thing that we must have is the prompt removal of the wastes of the body. Now if we will observe carefully these things, that we always have good air, nutritious food, good rest, have exercise, and if we attend to the removal of all of the wastes of the body, if you start with a good constitution, you have good health. I place good air first, because I really think it is the most important thing of all. Of course you know that we can live without food and sleep for a good length of time, but we must have air all the time, and therefore it is the most important thing. We are satisfied with three meals a day—I think horticulturists like three good meals a day—but that meets all of the ordinary demands of the stomach. But now just think of the demands of the lungs. They require twenty thousand meals a day at intervals of a few seconds of time, for every breath we take is a meal. Now if we are deprived of a few of these meals life goes out, so that good air is very essential.

But to return now to the matter of fruit. I want to say that we have, as you know, a great variety of fruit, and fruit varies much in size, color, shape and so on. And yet all the fruits have a tendency to the same characteristics; the same qualities are found in all fruits as far as their food value is concerned.

Now there are a few things that I really want to speak of. In the first place, fruit of all kinds contains a great deal of water. That water we sometimes call the juice, but fruit juice is a little more than water, although it is made up of probably 90 per cent of water, and perhaps more than that, but that water or juice of the fruit contains other things as well. For instance, that juice contains all of the sugar, and this is an important element in fruit. As I have said, the water comprises from 80 to 90 per cent of the fruit, and then we have usually from six to ten per cent of sugar in fruit. Now this sugar is always in solution, always in the juice

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of the fruit, and never found as sugar is found in other things, and we know it as it is found in the juice of the fruit, and a good, well-developed apple contains on an average about eight per cent of sugar, and that is a good kind of food, but we need a certain amount of other things. We use a great deal in one form or another, but sugar that comes in the fruit is perhaps as wholesome as any that we get. In addition to this sugar we have a certain amount of acid in all fruits. Perhaps this percentage is not so large as the sugar, for it only comprises from one to three per cent, rarely above that in fruit. You cannot tell by an apple being sour whether it has a large amount of acid or not, for that depends upon the proportion between the sugar and the acid. Some apples that seem sweet to the taste have less sugar in them than apples that seem sour. The acid in the fruits and the sugar in the fruits is really what makes up the quality of the fruit, that is, very largely.

Then there are oils that give the fruit their characteristic flavor. We know that we like some fruits, and we like them largely on account of their proportion of sugar and acids, and then we like the characteristic oil to give the flavor, for the flavor does not come from the sugar and acid but from the characteristic oil of that particular kind. When we have these things we have about all that we call quality and richness in fruit. I think you will understand all of this if we talk about the acid of the lemon, as it has a large amount of acid. We put a little in a glass of water and put in a little sugar, and all of us know that this will not improve the water very much, but if we put in more of the lemon and the water is good to begin with it will be very satisfactory. When the proportions of the acid and the sugar are right in the lemonade you would say that it is rich. Now that is just what we mean by rich in fruits, when we have the proportion that suits our taste.

Well, now what else do we have in fruits? We have a small amount of nitrogenous substances like the white of an egg, and exactly equivalent to that in food value, but the proportion is very small, there being not more than one per cent in most of our fruits, but of course there is sometimes more and sometimes less. Of course we have to have a considerable amount of these proteids which we get in meats and breads and foods of this character. Whatever we get from the fruit does us just as much good as from any other source, but of course we cannot get enough or all that we need from fruit, and I do not think it is always wise to claim things and claim that we can live as well on fruit alone, for there would not be enough nutritive value for some of our physical efforts. If I had the time and you had the patience I would like to give you some of the tables to show you how much fruit we would have to eat and of the different kinds of things to get all of the elements that man needs to support life, and get

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a well balanced ration of food when living on apples, plums, peaches, pears, etc. We would find that we would have to eat more than would be good for us to get what we needed or all that a good, healthy man needs for him to be able to do a good day's work. In order to do this he would have to eat about fifty or sixty pounds of fruit a day, and I don't believe that we would care to eat that amount of apples no matter how much we admire the apple. It doesn't add anything of value to the fruit to make extravagant statements that we can live on them alone, but it is true that they are extremely valuable and should have their part in the daily life. Now what makes them so extremely valuable? Well, the acid in the fruit is very valuable for it is an antiseptic and has the power more than anything to kill a disease germ that may be in the body. If we have an ailment that is caused by a germ, if we will eat fruit judiciously we are apt to improve on account of the acid the fruit contains. Fruit acts very well indeed upon the liver, and if fruit is used every day in our diet there is nothing else so good.

Fruit contains in addition to the things that I have named quite a considerable amount—never a very large amount—of fibrin. This fibrin is very beneficial to the body, for it keeps the whole digestive tract of the body in good condition. We have a less proportion of vegetable fiber in fruit than perhaps any other substance we use as food, and yet it is in that soft condition which is not harmful but is beneficial.

I want to call your attention to this fact in regard to fruit particularly. Dietists generally value food on the amount of dry matter it contains. Milk is valuable as it contains not so much dry matter. I suppose you know about the per cent of water in milk—about eighty-seven per cent of milk is water. When the water in the milk or in fruits is changed it changes the quality. This has sometimes been a great problem. You will usually find, however, that the best fruit is the fruit that contains the most water. Take fruit that is not very well developed and submit it to an analysis and you will find that it has a less percentage of water than good fruit. You often hear people say that fruit is not valuable because it has a high per cent of water, but when they say that they make a mistake. It may lack acids, but the mere fact that it has a high percentage of water will not detract anything at all from its value, but the absence of acid will.

The question is often asked if fruit is healthy. I do not think this is very good English for it would imply the question is fruit healthy itself, is it free from insects, well grown? etc. I think fruits are healthy, but that is not what they mean. They mean are fruits wholesome? Are they such an article as will not interfere with your health? I think that fruits are very wholesome, and I know that there are certain oils or certain acids in some fruits that do not agree with certain people, but that is not true of

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all. For instance, some people cannot eat strawberries and some cannot eat other things, and the reason is that some of the elements which these particular fruits contain do not agree with these particular individuals. I think there is no kind of food that has a higher value and that is really more wholesome than good fruit, and the fruit that does the most good is the fruit that we raise by our own skill and industry.

I am sorry there are not more young men here tonight; I like to see young men in our meetings. Of course I like to see the veterans, too, but I know that comparatively in a very short time they will pass off of the active field, and who will take their places?

I know that a great deal of fruit is raised here in Wayne County as well as other parts of the State of Indiana. We have some advantages possibly not quite as good and possibly equal to and possibly a little better in Ohio, and we find that everywhere we have a few places, but only a very few, where fruit cannot be grown. I don't believe there is anything that adds more to the real enjoyment of a family or to their contentment than fruit that is grown on their own grounds. I don't believe there is anything that adds more to the associations of a home than the planting of trees, fruit trees, around the place. Of course I like to see other trees also, such as ornamental trees, but I am particularly fond of fruit trees. I know that I helped to plant fruit trees at my father's home, and there is no one thing that has bound me to the old place so closely as those trees. There is nothing that I look for more eagerly when I return to the old home than those trees.

I am glad to say that I was more than pleased in coming up the Miami valley on my trip up here to see what a characteristic feature it was in western Ohio and eastern Indiana to see these fruit trees. They were around almost every home, and they certainly do make these places look fine, for there were apple trees, and peach trees, and cherry trees, and plum trees, and pear trees, and grape vines, which add an air of prosperity and profit.

So I think with all of these reasons we should respect fruit, and I always like to speak about the food value of fruit whenever I have an opportunity.

I think, Mr. President, that this is all the time that I wish to occupy at this time.

DISCUSSION.

Joe A. Burton—Do you think there is any danger from using young fruit too early? We begin with the Early Harvest apples when they are about the size of the thumb nail. We fry them, then.

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Prof. Lazenby—I think if they are cooked there isn't much danger, but if they are used in the natural state without being cooked they are sometimes dangerous. There is a good deal more vegetable fiber in the young fruit, and we know that small boys often find that these young apples are not very good for them, and they suffer the penalty. Unnatural fruit is not wholesome.

Joe A. Burton—Isn't the very young fruit ripened to a certain extent in the process of cooking?

Prof. Lazenby—It makes some changes in it, yes, sir. It softens some of the materials, the rather hard fibers, and makes them more digestible for us. I want to tell you a story. Speaking about green fruit, there was a boy who partook of some green fruit quite freely and suffered the usual consequences, and as he lay suffering and moaning a Christian Science man came along and asked what the matter was, and upon being told informed the young man that he really had no pain, that it was only his imagination, and when he kept on moaning this man told him to laugh about it, for it was only imagination, and the youngster spoke up and said, "Oh, go along, you, for I have inside information."

FIGHTING INSECT ENEMIES.

BENJAMIN DOUGLASS, State Entomologist, Indianapolis, Ind.

(NOTE.—It was impossible to obtain the manuscript of this address.—Secretary.)

DISCUSSION.

Mr. Quick—I would like to ask if it is better to apply the lime and sulphur mixture to the trees hot or if it makes any difference.

Prof. Douglass—Generally speaking, we recommend that this solution be warm at least, not necessarily hot, and my experience has been that it is not objectionable to apply it when cold, and I think that the reason that it has been impressed upon the people that it should be hot when applied is to get them to apply it when fresh and not allow it to stand a week or a month.

Mr. Dearborn—What are we to do for the insects that bore into the wood?

Prof. Douglass—For any boring insects we have only one remedy, and that is to cut them out. I know that this is not very satisfactory, but it is the only remedy that we know of.

(Adjournment.)

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THURSDAY AFTERNOON SESSION.

HOW TO GROW LARGE AND SMALL FANCY FRUITS.

Mr. Lowell Roudebush, New Richmond, Ohio.

Mr. Chairman, Ladies and Gentlemen—This is a commercial age, and the question with all of us is, "Will it pay?" Now let me ask you, will it pay for the average horticulturist or fruit grower to attempt to grow fancy fruits? My answer is it will pay better today than it has ever before, and it will pay better tomorrow and next day than today. And why? Because we have more wealth in the country than we have ever had before, and as was said last night by Professor Lazenby, fruit is good filling. He did not say that, for the facts are he wouldn't have used a slang phrase, but it is mighty good filling, and people who have the appetite and money are willing to give it up for some of these apples that look well and are good.

The horticulturists of the Pacific coast who are getting fabulous returns, and the most of them are, are those who are catering to the fancy trade and have been, not only in the United States but in all of the civilized and enlightened world. The Japanese are paying twenty-five cents apiece retail for Oregon and Washington apples. The Chinese are doing the same thing; the Boers in South Africa, the English, the Germans and a great many Americans. Then why not cater to the fancy trade, because the difference in labor expended in the production of a good kind of fruit, all other things being equal, is infinitesimal. The question is, how shall we do it? Well, there is more man in this proposition than anything else we discuss. It depends on the man. I grow fancy fruits. I must do or personally stand in the shadow of the man that does the work, see to each and every detail of it and see that everything that will make for the perfection of the fruit is done at the right time, and everything that will be against it is not done at all.

Then first you must have a sale. As I said yesterday, and I wish to repeat it today, that no plant or animal has the natural or inherent ability to make something out of nothing, never has had and never will have unless it is a miracle, and the age of miracles is past. So then you want to grow your fruits on soils that have food for the fruit, or if you are willing to supply the money to pay for furnishing the things that are deficient in the soil then that is all right. Hence in growing fancy apples, raspberries, strawberries, currants, gooseberries, etc., all small fruits in particular, plant them in a soil that is fertile and see that that fertility is sustained.

Now what do we mean by a fertile soil? One that has an abundance of available plant food, either natural or that has been supplied. I know soils that are wonderfully fertile as far as plant foods are concerned, but

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that have a very small amount of that fertility in available form. Now, my father-in-law may have a bank account, but that doesn't do me any good, for I can't check against it; and so it is with the soil. You cannot raise a bountiful crop unless that fertility is in the soil in an available form. Once more, then, if you are going to grow fancy strawberries you cannot have your soil too fertile. It may be that you remember exceptions, but if that fertility exists in relative proportions you cannot have too much of it. Let me illustrate. I know farmers in several counties in Ohio, and not a few in Kentucky, and some in Indiana, that found a few years ago that they couldn't grow wheat successfully because it would fall down, and of course that would reduce the profit. Now they had the other ingredients all right, but their soils were deficient in phosphoric acid, and when they applied this compound their wheat stood up and they harvested instead of fifteen or eighteen bushels to the acre thirty to thirty-five bushels.

The great problem in agriculture and horticulture is the feeding of the plants and animals, etc., and it is a problem in chemistry to combine a certain number of atoms in a certain well-defined ratio to produce maximum results.

Now, when will you set out strawberries? We set the plants early. In southern Kentucky and Tennessee we would set them in August. Get rid of the weeds. What varieties would I set? Well, I can't tell you anything about that unless I had tried it on your soil. I never advise anyone just what varieties to set out, for they are so susceptible to soil conditions, but I will say this, that I would set a variety that had quality, that is a good grower, and a variety that could be shipped and one that is prolific and has a long season. You have heard a good deal about the Hood River Valley strawberries. It is not prolific, hasn't quality, and why does it bring such prices? Simply because you could ship it to South Africa and back and it would still look all right. They will stand up under ordinary conditions for from seven to ten days. The retailer can buy a crate and if he doesn't sell them on Monday he can on Tuesday, and if not on Tuesday, Wednesday will do, and if not then, Thursday, and in fact you may buy some of the same ones for your Sunday dinner.

In small fruits you want quality, but the appearance sells them, and it is a mighty good thing when these two things are blended together harmoniously.

Now, for the strawberry you must have moisture, for it is about ninety-five per cent water, but it is mighty good water. Plants cannot get any water unless it is in the soil. We used to destroy the first runners, but we are changing our methods. Last year the fellow that did not have the first runners did not have any at all. How many do you leave? Well, that depends upon the variety. On some varieties we leave only two and

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on some varieties we leave four, but never more than eight on any variety. Now let's reason together for a moment. Which is the most important, the mother or the four children? Of course if we are determined to get very large berries we must keep the runners off, and we will have a few wonderfully fine ones.

Now what about the picking of them? If you have raised good berries don't spoil them in the picking. Don't spoil a good thing the last minute. You shouldn't mix good berries with inferior berries. Let the berries be all alike clear through. In fact they accuse me in two towns down home of putting the largest berries in the bottom so they will be on top when the berries are emptied out. I am very careful to round out my quarts, and I want to tell you that there isn't a lady in the house but what will buy the quart that seems to have one more berry on it. But this is a business proposition, and I do not have a right to deceive anyone or take advantage of anyone. If you sell your measures for quarts and there isn't a quart in them you are just as much of a thief as if you were to put your hand in another man's pocket and take out his money; but most people don't see it in that way. You want to have such good berries that they will sell themselves. We throw away our inferior fruit to our hogs, and they as well as the customers enjoy it. You haven't the least idea how much they will enjoy your leaving the worms at home.

Now you want to have your packages bright and new. I had a habit a few years ago of getting all of the old packages back, for I thought I might be able to save a little, but I found out that it was a very grave mistake, for the new packages are very attractive and will attract the attention of the purchaser from a distance, and his mouth will water and he will come to your stand and buy some of your berries and hurry home with them.

Now sometimes we find that it is necessary to thin small fruits. I know that Brother Burton has to thin his fancy Grimes Golden apples. That is one thing the Pacific coast people do, and I have done it on a small scale and I have found it to be very profitable. I have found another thing with apples, that they are better if they are picked at different times. The ordinary orchardist picks all of the apples at the same time, on the same day, but I think it is better to make at least three pickings, and in this way we will get a large profit. If Prof. Lazenby were only here I could call him in to testify as to the results of the difference in picking the apples at different times, for we gave him some for class work at the Ohio State University. You want apples in good packages, and the same all of the way through. The reason that some people in New York prefer the barrel for apples to boxes is that they think they can work in more hog apples into the barrels and not be caught than they can in boxes, for

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you can dig down in a box and find them and you can't in a barrel. I want to tell you that there never was a better opportunity for the people in Ohio and Indiana to turn over a new leaf and to go to packing their fruits honestly, because New York apples are in disrepute in any of the states west of Ohio and south. The commission men at Louisville and Cincinnati, and I know whereof I speak, are determined if they do not handle their apples better and more honestly that they will not buy from them, and the result is that the fruit growers of New York have perfected an organization, and perhaps they will have stamped on their packages just what they are selling. I know, Brother Burton, that you understand your business, as do a hundred other men, but it seems that in some places organization is absolutely necessary.

Now I will not take up any more of your time. You must have the soil that has the material out of which to make fancy fruit, and you must be a man that is willing to do the little things. This is just what makes the difference between a success and failure. You want to grow fruit honestly and it will sell itself. If you don't believe it try it.

My wife said to me, "Why, do you expect to sell fruit in New Richmond? You will starve to death." I told her that I was going to try it, and I have succeeded. I was so busy not long ago that I sent another man with my fruit to sell it, and when he went to the door the housewife said, "No, we don't want any of your berries, for we buy only of Mr. Roudebush." Some of the people down there think I can grow any kind of a potato I want to, and it is simply because I grade them.

I want to thank you. I am glad that I came here, and hope that I have said something that will be of benefit to you. I would like to say again, however, that you must thin some of your fruit. I know that it is mighty hard in the beginning to pull off all that you should, and I'll confess that I had to close my eyes to do it, but it pays, for you will be able to get $1.50 a bushel for fruit that you would have to take twenty or thirty cents for if they are not thinned. We did this with the Kieffer pears.

DISCUSSION.

A Member—Doesn't it hurt your conscience to sell Kieffer pears for $1.50?

Mr. Roudebush—Why, no, the other fellow wants them. I sold some once to an Italian, and in three minutes after they were unloaded he was calling out, "California pears here, nickel apiece," and the people came flocking up. That is an advantage, for your conscience is not hurt at all, because they want them and they get them, but it always did hurt my conscience to sell hog feed for twenty cents a bushel. We sold some Ben

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Davis apples a few years ago for one dollar a bushel, and some of the other groceries paid a dollar and a half and some two dollars. We must spray when our fruit needs it and not be afraid of the work. You know that the lazy man suffers ten times what the industrious man does, just because he fears the work and the industrious man does not. It isn't the doing of the work that hurts the lazy man, but it is the thought of having to do it. And if we don't learn how to thin when we have an abundant crop we will not have fancy apples.

Mr. Ritterskamp—Would you prefer with strawberries to keep the runners off the first part of the season?

Mr. Roudebush—Why, I would invent a machine that would take the runners off, and I would let the first runners go and possibly up to the eighth runner and then keep the rest off.

Mr. Ritterskamp—With us it is difficult to let the first runners start by June 1st, for we have to take care of the crab grass, and there is not one hoer in ten that will take it out.

Mr. Roudebush—I will agree with you there.

Mr. Ritterskamp—Well, I can't do it myself, and that is the trouble.

Mr. Roudebush—Well, there is no question but what it works a hardship. We worked our ground the year before and got rid of the weeds before the plants were planted.

Mr. Ritterskamp—Yes, but when we buy our manure we haul the seeds back again.

Mr. Quick—How do you thin apples?

Mr. Roudebush—We think ordinarily that we should thin until no two apples touch. You will find lots of times you will have to shut your eyes in order to thin as you should.

Mr. Quick—Suppose a man has more apples than he can thin. What will he do about it?

Mr. Roudebush—He will just have to train some one to thin them, too.

Mr. Quick—But they are hard to train.

Mr. Roudebush—Yes, a man has to be a born horticulturist. As I said yesterday, if you don't like small fruits don't go into it commercially.

Mr. Quick—I had an experience along that line a few years ago. I had some peaches that I thought ought to be thinned, and I had an old man working for me, and as I didn't have much else for him to do I set him at thinning those peaches while I went away on some important busi-

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ness. When I got home along about noon I don't believe that man had taken a quart of peaches off of that tree, and as soon as I came into sight he commenced to curse and told me that I was the biggest fool that ever lived, and that I hadn't had a crop of peaches for a long time, and when it did seem that I would have one I set some one to work to pull them off, and that he wouldn't work for such a fool as that, and that I could just pay him off. So if you have more than you can do yourself you are in a bad shape.

Mr. Roudebush—That is true, and no man now expects to grow good fruit without spraying, and spray we must and thin we must.

Mr. Quick—Do you spray your strawberries?

Mr. Roudebush—Yes, sir, and even the cherries, and I sold them this year telling the people if they found a single wormy one they were to bring them back, but we did find a very few worms, but people laughed at me when I told them that it was possible to raise cherries without worms. You know the truth is sometimes hardly believable. I want to emphasize the fact that Brother Burton says that the whole thing hinges on spraying. We spray strawberries in the autumn and again in the spring just before they bloom, and we find that we are not bothered with insects and they do not rot or blight. We use the Bordeaux mixture, 4-5-50 formula, in addition to three pounds of arsenate of lead. We never use paris green on small fruits except spraying currants and gooseberries.

Joe A. Burton—Do you use sulphate of iron?

Mr. Roudebush—We never have, but I think it might be all right. It looks bad, but we will have to get over that. We were the first ones in Ohio to use the arsenate of lead, and we got our inspiration from the moth commissioners in New York or Massachusetts.

Mr. Quick—I like to use the white arsenic better than the other. I know there is a disposition against it because some think it is dangerous and might poison something, but I like it.

Mr. Roudebush—I never advocate the use of anything but arsenate of lead and Bordeaux mixture in general terms, because I think it is dangerous. For instance, I might tell about the kerosene emulsion, and it is all right, but it is dangerous to handle, and therefore I never mention it at a farmers' institute because nine-tenths of the farmers and small fruit growers would do more harm than good with it.

Joe A. Burton—Do you have any trouble in mixing up the arsenate paste to get it to mix with water?

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Mr. Roudebush—Yes and no. If it is fresh, why it is quite a little work to work it up sometimes, and when you get it in small packages you have so many neighbors that expect you to order all of these things for them, and therefore you never know just how much to order.

Joe A. Burton—You might tell the people that Burton uses a cast aside churn to mix up the arsenate of lead.

Mr. Quick—I see by the magazines that there is a man over in New Jersey that has found a formula by which he can cure, positively cure, any form of blight, so he says.

Mr. Roudebush—I am glad you emphasized "so he says."

Mr. Ritterskamp—Then the second spraying of the strawberry is just before it blooms.

Mr. Roudebush—Yes, sir. When I was in the West they had trouble on the question of bees, and I think they can demonstrate beyond the shadow of a doubt that the berries are reduced very largely through the bees, and the courts will have to decide which is the most valuable.

Joe A. Burton—Aren't there really hundreds of other insects that will do this just the same as the bee?

Mr. Roudebush—I think so.

Mr. Quick—If the bee is destroyed will the fruit be pollenized as perfectly as now?

Mr. Roudebush—I would say no. If you haven't any more questions I will be going, but I will be glad to see you in Ohio at any time.

Mr. Swaim—I regret that I did not hear all of this talk from the gentleman. I am very much interested in the remarks about thinning, simply for the reason that this is one of the hobbies that I ride. I have practiced thinning for twelve years, and I appreciate very much the remarks the gentleman made in regard to the courage it takes, for it does take courage, but I have trained my boys until they are pretty good at it too. I had some Kieffer pears, and I have had twelve successive crops of fancy fruit without a failure, and they are the lightest this year that have ever been. If you were to see the fruit under the tree that they thin you might think it was an insect, for there was as much as five or ten bushels about the size of crab apples, and they were perfect apples without worms in them, but it does pay to thin when you consider size and quality, and it pays in the vitality of your tree and the price you get for your fruit.

Mr. Quick—If your apples are in clusters and two or three of them touch what would you do?

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Mr. Roudebush—If I hadn't sprayed most thoroughly I would pull them off, because the second brood of codling moth will be able to destroy them, and I might as well have them off and give the others a chance to get the benefit. Even when apples grow in clusters invariably the second brood of codling moth eggs will be deposited on the apples where they touch. Mr. Cox, who grows Rome Beauties especially, employs women and girls to thin his orchard for him, for they will do just what he tells them to do in this regard and the men will not. Now I don't mean by this that Mrs. Roudebush always does just as I want her to do, but you know she don't have to. We should not produce anything but fancy fruit, but the trouble is that we can sell anything here, and this is the very reason why we haven't done as well as we might. Everyone knows a great deal better than they do, at least I do myself.

Mr. Quick—Along this subject I find after we have grown strawberries we should keep the middle clean. Now I go in there with a garden rake and rake them out thoroughly and tear out everything that is not established. Will this method hurt my plants?

Mr. Roudebush—No, sir, it will be very good.

Mr. Quick—My neighbors think it is a terrible method and that I rake my patch pretty nearly to death.

Mr. Roudebush—If you know your business it is all right. I have a notion that I would like to reach the place where I can raise sixteen thousand quarts of berries to the acre; I haven't reached that place and don't know that I ever will, but that is my goal. I have a local market that demands fancy fruits, and my berries have made the market. It is not Roudebush but it is the berries. Other people were selling for seven and a half cents when I was getting fifteen and sometimes eighteen cents, and one time I got twenty-five cents a quart. Now you know they are fine to sell for that. I want to tell you that people have money even though they may not give it in when the assessor comes around, and when you get hold of people that have the money they are willing to part with it, or at least that has been my experience. You first want to get a first-class appetite for fruit and then have the fruit, and I'll tell you that people will pay the price for it. The very best market is one where there are lots of laboring men employed.

Someone asked me what varieties I use. I have the Haveland, Bubach and Gandy, and I have found that the Gandy is the most treacherous berry in the list.

Mr. Quick—Does the Bubach pay?

Mr. Roudebush—Yes, mine do.

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A Member—Mine do not, for after I get two pickings then it is all over.

Mr. Roudebush—Some of my neighbors have the same trouble, but perhaps their soil is not good.

Mr. Quick—I think I can answer that question. The reason why the Gandy, or rather the Bubach, gets this way at the latter part of the crop is because the one which you have for fertilization does not fertilize the second crop.

Mr. Ritterskamp—I use the Jesse.

Mr. Quick—You must use two, an early and a late, in order to overcome this.

A Member—The Dunlap is good.

Mr. Roudebush—Yes, it is good in its season.

A Member—Some of you gentlemen may have had the same experience that I had. I paid a good price for the Bubach from a good firm and they were not that kind at all.

A Member—Now the prevention of danger to the plum by this bug called the curculio, is there any remedy to protect the fruit from its ravages? You know it is a beetle and can fly from the tree to another tree, and it stings the young plums just as soon as the bloom is out of the way. Now I would like to know if there is any remedy. I have tried to exterminate it in two different ways. I have used a spray and also used a system of jolting limbs and catching the bugs on sheets, and we can get nearly all of them. Last year I caught about thirteen hundred on some eleven or twelve trees, and this season the number was reduced to five hundred with the same process. I should like to get rid of this injury to the plum.

Mr. Roudebush—We spray as the first work. With the plum we spray the tree with a straight Bordeaux mixture without the lime just as the leaves are showing signs of swelling, then when there is the least bit of growth we use a straight Bordeaux mixture, and then when these little bugs come out of the ground and feed on these limbs a great many of them are destroyed. We have had no trouble whatever in controlling this bug so far as it relates to the plum, but we do have some trouble with the codling moth.

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OUR BIRD FRIENDS.

Prof. C. E. Newlin, Irvington.

To hear Mr. Roudebush talking reminds me of Uncle Joe Cannon, and I must tell you that it is rather discouraging to us fellows to hear you telling about how high the prices of fruit are going, for even now we are taking our money to market in the basket and bringing the fruit home in our pocketbooks. But you know there are so many sides to take to the question, and I presume that when you have perfected your fruit as you hope to do it will be only right that you should be paid for it.

There are so many sides to a talk on birds and horticulture that I scarcely know where to begin or what to say. But I would like to take the other side than the money side if I could feel that I was justified in doing it, because Mr. Roudebush says this is a commercial age, and it certainly is, and as there is so much commercialism in this country I would like to talk a minute on the aesthetic side of things. I would like to get something into our lives other than the grabbing for dollars. There is so much pleasure in the orchard and in the field that you can get out of noting these birds.

Just to show how observing children are, and grown people, too, for I have done quite a lot of work in teachers' institutes, and I have on several occasions, just for the experiment and for my own sake, to find out how many of them knew certain things with which they should be familiar, and for the fun of it I'll ask you the same question, although I'm almost sure you will be more familiar with it. How many toes has a chicken on each foot? I have asked this question just to show how much we really see, or don't see, of the very common things out of which we could make great things. We begin to analyze birds like flowers, how many stamens they have, and these things are worth while, and we really should enjoy the birds and get lots of pleasure out of watching them. It is worth while to waken up on the first warm days in April and lie in bed for a little while even if the early worm does get the garden, and listen to the birds on the top of the highest limb in the trees making a noise something like this (imitates the bird), and it is certainly a pleasure to me to know the color of that bird and what kind of a nest it builds, the color of the eggs it lays, how many eggs it lays, how large the incubation will be, and other things worth knowing and thinking about. I love to hear the birds. I wonder why it is that we know so much more about some birds than we do about others, when you hear the unknown ones so much more than the ones you are better acquainted with. I guess the reason is that one appeals to the stomach and the other one does not, and you have a better appetite than mind, and that is the reason you know it.

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But these things are worthy of our consideration from the aesthetic standpoint, but we have men that take them from the other standpoint and think that is the thing that is of vital interest. You cannot expect to carry on your horticultural work without spraying and attending to the insects, but the birds will help you take them away, for you cannot get all of them. Birds are coming back to us in greater numbers now than they were a few years ago, for along in the 90's all of the bluebirds were killed when we had the freeze in April, but they are beginning to come back again. And our native birds are also beginning to learn that the English sparrow is like the ordinary British bluffer, he is not nearly as brave as he pretends to be, and our bluebirds and wrens are beginning to understand he is not dangerous and are building their nests around you, and one nest is worth a great deal to you.

There are three ways of considering birds, from the economical standpoint, laying aside the aesthetic, those that destroy the weeds, which are of vastly greater importance than any of you think. You would be surprised if you were to analyze the stomach of a chipping sparrow to see how many weed seeds they have destroyed, and perhaps they got them out of the strawberry beds, but you could find them by careful investigation. It was estimated by a careful study in Iowa that the birds there destroyed eight hundred and fifty tons of seeds of just one variety of ragweeds in a year, and when you know how small that seed is and how it will grow you will appreciate how many ragweeds there were kept from growing the next year. If you could only see some of these examinations you would appreciate what a great thing these little birds were doing for you in this way.

Now birds not only destroy weeds but they also take worms away from the orchards and gardens. Even the hawks and owls do a good work, and I learned a little while ago that when the farmers of Pennsylvania passed a law that there should be a reward for each and every one of these animals killed because the farmers complained that they destroyed their crops, after this bounty was paid for these hawks and owls the very next year they were overrun with field mice to such an extent that by careful investigation it was estimated that in the two years following the bounty law the State of Pennsylvania lost four millions of dollars. It was a very unwise thing to offer a bounty for these animals. It is a fact that they destroy some things, but they are worth much more than they destroy. So if you destroy the hawks and owls you will be eaten up by mice, for these birds are considered of more value than harm. Have you ever noticed how many times a bird will peck inside a tree and come out with a worm? Watch a nest of bluebirds and count the number of times the mother comes to the nest with worms in its mouth and goes off after another, and have

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you ever counted the number of hours that a bird will work in the summer time? You could see the tremendous value they are, for on an average they will come with a worm every ten minutes for from twelve to fourteen hours. They do most of their work in the early morning hours. If you would only notice these things you would then appreciate what the birds are doing for the horticulturist. They are helping you to exterminate your pests. I don't know whether they can do anything for the small insects like the San Jose scale, and I don't think we claim that the birds will do very much for that, but there are many things that they do destroy which you are not spraying for, and there is where you are going to get the benefit. You could do a good deal to encourage the birds to come back if you would understand these things.

I remember a few years ago when I was in school and was interested in the study of birds that I thought it would be nice to have an oriole's nest, and I furnished little bits of carpet chain and silk thread in all different colors and lengths, and that oriole built the nest, and it was quite long and looked like Joseph's coat of many colors, and the pieces of thread that were five or six feet in length would all be woven in until not one-sixteenth of an inch would be over at the end beyond the general contour of the nest. When the nest was finished it was so large that it gave the wind a good chance to strike it, and one day there was a wind that swept it back and forth until it was broken from one end of the limb and the next dropped down. Now remember the building time had passed, but the next morning the bird went out and found a piece of string five or six feet long and tied it around the lower part of the limb and the nest and pulled the nest into position again and secured it there. Now if you wish to find a picture of that nest you can find it in the October number of St. Nicholas' Magazine of 1881. The birds will soon learn that you will provide things for them, and they can reason, too. That is something more than insects can do. Now this bird provided for an emergency, and certainly had to do some thinking. We can assist birds very much if we will get the children interested in them and send them out in the early spring, before the birds begin to come back, with some wood and a saw and hammer and let them fix places for the birds to make their homes and build their nests, and if you will do this you will soon find that the wrens and other birds will come to your place, for you must make the holes so small that the English sparrow cannot get in if you wish the wrens to come in and take possession. I think this is worth the effort, because I believe that if we had kept the birds together as they were in the earlier periods when this country was settled we would not have the trouble that we have and would not have to be spraying for anything except something like the San Jose scale.

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But it is not too late yet, because the forests are coming back to us. If you will ride over the country in an automobile or an electric car you will see places which twenty-five or thirty years ago were devoid of trees, filled with trees, for the farmers have begun to plant trees around their houses, and that helps a great deal. I was in northern New York the other day where a man thirty years ago planted a row of maples on each side of the big road, and now they are very nice, and I have never seen such rows of trees, and this man has a wonderful sugar orchard, and they extend for nearly a mile, a double row of them. You find great groves are being planted around the houses, and these things will be of a great deal of benefit to us. They were of benefit to the early settlers and they will be of benefit to us.

The last speaker said that if you are going to make money out of fruit you must be a fancy fruit grower and then get fancy prices for it. It costs so much to raise fruit now that you can't afford to feed very much of it to the hogs after you have spent so much time and money on it, and it is well enough to look at this matter from a rational standpoint and protect the birds and furnish more places for birds, because their homes were taken when the forests were taken away, and I think it is worth while for the horticulturist to give some consideration and time to the birds and not think all the time how he can protect the whole thing with spraying with Bordeaux mixture and other spraying mixtures. We must protect the birds if we expect to protect ourselves.

I was in a cemetery the other day in Concord, Massachusetts, and I was looking around through it for the grave of Louisa M. Alcott. I had been there before but could not just remember where it was. I had seen the graves of several other prominent people, and as I was looking I saw a man coming through the yard looking into the trees, and I thought perhaps he might be looking for a swarm of bees, and when he came close to me I asked him if he could show me where this grave was, and I gave him my card, as he was a perfect stranger, and I found that he was one of twenty-five men that spent the entire year, all the year, in one township trying to exterminate the gypsy moth. These twenty-five men were hired by the township, and sometimes they would spray at certain seasons of the year or hunt worms, doing nothing all the year round but try to exterminate the gypsy moth. They hunted them in the middle of the forest as well as in the orchards. They had a belt around the tree about six inches wide, rather loose around the tree, and in the morning they would start out with a sharp knife and turn this belt over and cut the worms in two that happened to be under there, for they would stop under this strip instead of going down into the leaves that were on the ground, and the next morning they would turn this belt back and repeat the same process,

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and they would go over the same territory each day. And they would go out with their teams and climb clear to the tops of the trees and prune. Now the State Audubon Society, of which I happen to be financial secretary, has joined with us to help keep the legislature right in regard to the birds, and we found that you haven't the least idea how difficult it is to do these things. You would think that no one would ever think of anything but to protect the turtle dove. Can you think of anything more innocent? the very symbol of innocence, but for two legislatures we have had the hardest fight in the world to keep the turtle dove off of the game list. They do not destroy anything. We would like this society to help us keep laws off of the books and protect these birds. No one has a right to kill a thing that doesn't belong to them individually but to the community at large, and a man has just as much right to protect the birds which are on his farm as he has to protect the chickens in his barnyard, and he has a right to have them protected from the hunter. No one hunts the quail because he will go hungry if he does not. Those people are not the ones that do the hunting. The sporting men go hunting as a recreation, and of course it is a recreation, but we have a right to protect ourselves in that way. I want to appeal to you to help us in this effort to bring the birds back to us, and if we do this we will have to keep this fight up from now until the end of time, and the sooner we make the effort the easier it will be for us.

I will not take more of your time today but will be very glad to answer any question. All that I hope to do is to stir up an interest in the study of birds for their sake first, for there is nothing that keeps us closer to nature and keeps our minds from the grosser things in life, and they have a store of information for us.

I wonder how many in the room know the cowbird? It follows the cows and picks up the insects and the flies. How many of you have seen their nests? How many of you know about their nests? They never build a nest, and they are the only bird in America that does not build a nest. They fly around and deposit their eggs in the nests of other birds; I suppose it is necessary for some birds to be worthless and indolent and others more active. It seems strange, but these eggs will hatch two days quicker than any other bird's egg, and you know how fast a bird can grow and the size it will become in two days, and of course this one has two days the start of the others and keeps its great big mouth open for all of the worms. When the other birds are laying their eggs in the springtime this mother bird sneaks among the grass and the trees, and just the minute that the mother bird leaves the nest this bird slips on for just a minute and then is gone, but she has deposited her egg there, and you will go there and find some dainty little eggs and in the middle a great big brown speckled egg which is so large that often it will raise the mother bird off of her own

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eggs and they will not hatch at all. I saw a little bird once that had her eggs laid in the nest when along came this bird and deposited an egg, and the mother bird not being willing to hatch this egg, built another nest on top of this one, and laid another setting of eggs, but the cow bird did the same thing again; not to be discouraged, the little mother bird built the third story right over the other two nests and laid her eggs, but the other bird did the same as before, and this time the little mother bird was so discouraged that she flew away entirely and none of the eggs were hatched at all. The cow-bunting is a bird that is of no commercial value that I know of. I suspect some one will ask me when I sit down whether the English sparrow is worth while or not. I still offer five dollars to the person who will bring me the stomach of an English sparrow that has a worm in it.

DISCUSSION.

Joe A. Burton—Don't you think the English sparrow eats worms sometimes?

Prof. Newlin—I have only seen them make a stagger at it.

Joe A. Burton—I have seen them get worms with such vengeance that they would follow along on the ground after the hoe to get the worms.

Prof. Newlin—Do you know whether they swallowed them or not?

Joe A. Burton—I am not sure of that.

Prof. Newlin—They like to kill anything they can get at.

Joe A. Burton—I don't know what they did with them at all, but I have seen them come in the garden and hunt for worms. Now I would like to ask this question: Would it be possible by securing some of these worm-killing English sparrows and breeding them, feeding them on worms, turn out English sparrows that would be worm-eaters?

Mr. Snodgrass—They would be like the Ben Davis apple.

Prof. Newlin—It certainly might be worth while.

A Member—Do you advocate the killing of these sparrows?

Prof. Newlin—I don't think they are of great value, and they are a nuisance in the large cities, but you are not bothered in the country, are you?

A Member—Yes, sir.

Sylvester Johnson—I have only about four minutes, so I will not detain you long, but I want to talk to you about killing birds. I believe in birds, and I like most of them, and I agree with what Mr. Newlin has said in the

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most part, but in regard to the catbird I don't like it because it goes along and picks into the grapes, pick, pick, pick, and during the day the bees follow this bird and get the juice, and then you hear people saying that the bees are taking their grapes, when really the bees are not at fault. Bees cannot break the skin of a grape; a bee can suck but not cut, and for that reason I don't like this bird.

Mr. Morrow—With regard to Mr. Burton's observation of the English sparrow, it seems to me it must have been some other kind of sparrow, for I have never seen an English sparrow hunt for insects in my life. Two or three years ago I shot an English sparrow and when it fell to the ground it had an insect in its mouth, and that was the only case of that kind that I have ever seen. I don't like them and I went to work with the shotgun and I'm almost rid of all of them. I try to kill every one that comes around. I am not a very good marksman, and I haven't used over fifty cartridges, but I keep them cleaned out, and I wish everyone else would do the same.

Mr. Quick—The gentleman over here only adopted local option and drove them out of his barnyard into the other fellow's.

A Member—Well, if the other fellow don't want to shoot them he can feed them. The other birds soon get trained and find that you are not shooting at them, but the sparrows will seek safer quarters.

A TALK ON BEE-KEEPING.

GEORGE S. BEMUTH, Inspector of Apiaries, Indianapolis.

Gentlemen and Ladies—I have my bees right here with me, and they have been with me all of this week, staying at the hotels with me.

Few people realize the importance and the possibility of bees in this country, and of their keeping. Those who are not acquainted with them, and some who are, have no idea as to the magnitude and importance of the industry of the honey-bees.

The bee is not a native of America, but was brought here with the earliest settlers; in fact the Puritans brought bees with them, and since then bees have gone with civilization and sometimes ahead of it, and it is an interesting fact that only in the English language is there any word for bees, honey or wax.

Bees were kept in a very primitive manner for two hundred years, but for the past fifty years there have been rapid strides made in bee-keeping. I can explain this best by explaining the bee-hive. (Here followed a description of the hive.)

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Now, honey is sold in two different forms in this country, in sections and extracted, which most people call plain honey. This extracted honey is taken out of the comb by a process of machinery, and is done in a way so that the comb is not injured to any extent. This comb is then returned to the bees and they refill it. Of course they can make much more honey in this way than when they are required to rebuild the comb.

Now the bees are great pollenizers for the flowers.

If you would like to examine this hive after the session has closed I would be only too glad to have you do so. I do not wish to say very much in regard to the bees in connection with the flowers, because that is more in your line than mine. You know there are two kinds of flowers, generally speaking, the wind-loving flowers, and the insect-loving flowers. One illustration is the ragweed. We hardly know that this is a flower, but the wind distributes the pollen and this plant does not require the aid of the insects. As for the insect-loving plants, you are acquainted with those. This class has been talked about again and again. Now the reason for the color of the flower might be of interest to you. The color possibly attracts the insects that they may come and come in contact with the pollen and carry it to another flower. The honey-bees carry this on a little brush-like arrangement that must be for the purpose of brushing against the pollen, and when they go into the flowers you see that it comes in contact with the pollen, so perhaps the honey-bee has been fitted up for this purpose of fertilizing flowers. On the other hand, the flower has its nectar placed in such a position that the bees cannot pass to get the nectar without first coming in contact with the pollen.

The honey-bee possibly stands first as a pollenizing agent. There are three reasons for this, namely, that since man has taken charge of the honey-bee they winter better than formerly, for the winter often killed off a great many of them. Another reason is that the honey-bee does not winter in the same manner that most insects winter, for they winter in the colony. The third reason is the storing habit of the honey-bee in storing away its honey, while other insects simply use up what they gather.

I have been following the peach blight scare in California, and it seems to me that the matter is not the fault of the bees. Our people have made a distinct study of this question and they say that the honey-bee is not to blame, and in California they tried taking the bees away, with the result that there was a falling off in other crops of fruit, so much so that the farmers and fruit growers begged them to come back, that they might have their fruit fertilized. Now the matter of peach blight can be charged up to the prejudice of people who are ignorant of the habits of the honey-bee. It seems to me that the honey-bee assists three classes of people: first, the bee-keeper, who keeps them for the money they make him. The honey pro-

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duced in the United States amounts to twenty millions of dollars; then the people are given one of the most wholesome foods known to men; then on account of their pollenizing the fruit for the fruit growers.

If there are any questions which you would like to ask I would be very glad to try to answer them for you.

DISCUSSION.

Joe A. Burton—I do want to ask some questions, and I feel like rising to a point of order on account of the wild declaration that we would not have fruit without bees, and the warning of the people that they had better stop spraying, for the spraying materials were poisoning the ground, for we have positive proof from experimental orchards that these materials in a hundred years would not contain enough poison to kill an apple tree. This is the result of an actual demonstration, and it is not merely theory. We have had a great many declarations made about apples being poisoned by the spraying material, but there is nothing in it. I do not doubt that the bees are valuable in pollenizing the fruits, and perhaps sometimes produce more fruit than without, but for us to think that we would not have crops of fruit without bees, to my mind is very ridiculous.

Mr. Bemuth—I did not mean to say there would be no apples without bees, but I did say that they are the most important pollenizing agent for such trees, and it has been shown over and over again that close fertilization makes better fruit.

Mr. Snodgrass—I would like to know why the Kieffer pears did not pollenize this year?

Joe A. Burton—I think it was on account of the windy weather and the rain.

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REPORTS OF COMMITTEES.

REPORT OF RESOLUTIONS COMMITTEE.

SYLVESTER JOHNSON, Chairman, Irvington.

Resolved, That the thanks of this society are due to the Town Board of Centerville for the use of this hall in which our meetings have been held.

We also want to thank our venerable and faithful co-laborer, E. Y. Teas, for his interest in our welfare and his efforts to make this meeting a success.

We further wish to commend to the horticulturists of the State the plan of the Purdue Experiment Station in taking orchard demonstration work to any locality where enough people are interested and will ask for it.

Respectfully submitted,

SYLVESTER JOHNSON,
JOE A. BURTON,
C. M. HOBBS.

Secretary Flick—I move that the resolutions be adopted.

(Carried.)

Mr. Swaim—I think it would be courteous for this society to send greetings to Mr. Ragan, and I therefore move you that the Secretary be instructed to send him the greetings of this society.

Mr. Snodgrass—I second the motion.

(Carried.)

REPORT OF COMMITTEE ON AWARDS.

FRUIT SHOW AT CENTERVILLE, AUGUST 3-4, 1909.
W. J. RITTERSKAMP, Princeton, Judge of Fruits.
Mrs. J. M. SNODGRASS, Kirklin, Judge of Flowers.

Best collection early apples, not less than five named varieties:

1. D. Daugherty & Son, Cambrige City.....$1 50
2. .....

Best plate early apples:

1. S. A. Hazelett, Greencastle.....$1 00
2. S. A. Hazelett, Greencastle..... 50
3. Chris King, Rushville..... 25

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Best plate early pears:

1. W. B. Flick, Lawrence.....$1 00
2. Mary J. Flick, Lawrence..... 50
3. T. J. Quick, Columbus..... 25

Best collection early peaches, not less than four named varieties:

1. T. J. Quick, Columbus.....$1 00
2. .....

Best plate peaches:

1. W. B. Flick, Lawrence.....$1 00
2. W. C. Gates, Lyons Station..... 50
3. Mary J. Flick, Lawrence..... 25

Best collection of grapes:

1. Eliza A. Stevens, Centerville.....$1 00
2. .....

Best plate of grapes:

1. W. B. Flick, Lawrence.....$1 00
2. .....

Best collection of vegetables from the home garden; not less than 10 kinds:

1. Eliza A. Stevens.....$5 00
2. .....

Best collection of dahlias, not less than five varieties:

1. E. Y. Teas, Centerville.....$2 00
2. .....

Best flat bouquet:

1. Mary J. Flick, Lawrence.....$1 00
2. .....

Best round bouquet:

1. Mary J. Flick, Lawrence.....$1 00
2. .....

Best collection of plants in pots:

1. E. Y. Teas, Centerville.....$2 00
2. .....

Best collection of gladioli:

1. E. Y. Teas, Centerville.....$2 00
2. .....

(Adjournment.)

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PROCEEDINGS

OF THE

FORTY-NINTH ANNUAL MEETING

OF THE

INDIANA HORTICULTURAL SOCIETY

The forty-ninth annual meeting of the Indiana Horticultural Society was held in Rooms 11 and 12, State House, Indianapolis, Indiana, on December 1 and 2, 1909.

After an invocation had been offered by Rev. Carr, Vice-President C. N. Lindley, of Salem, was called to the chair, and the Society heard the annual President's address.

PRESIDENT'S ADDRESS.

W. C. REED, Vincennes.

Once more we are convened in annual session to review the past season's success or failures, and to plan our campaign for the coming year for the advancement of horticulture in the State of Indiana.

The past season's fruit crop has been very light, except in a few orchards well distributed over the State. In every case that has come to my knowledge, these crops have been produced on orchards that have had the best of care and were thoroughly sprayed. The quality of fruit from such orchards has been first class. These scattering crops only help to prove that what Indiana fruit growers need is to learn to spray thoroughly and at the right time, and to give their orchards better care.

Prices—The prices obtained this season have been very satisfactory, indeed, for all kinds of fruits, small fruits included.

Importations.—Indiana does not grow nearly enough apples to supply her own people. This should not be. We can produce apples equal to the best, as has been proven in many of the expositions where our apples have come in competition with the world, the latest prizes having been won by one of our members at the Spokane National Apple Show.

The land is cheaper here than in many orchard sections of the West. We have the markets right at our door, thereby saving much in freight charges. We should grow better fruit, grade better, pack well in packages to suit the fancy trade, and the returns will be satisfactory.

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Legislation.—Owing to the last Legislature cutting down our annual appropriation, the Society has been compelled to curtail expenses on all sides, having discontinued the issuing of bulletins on important subjects, and on July first the Society was compelled to close the office in the next room, which has been kept open by your Secretary for several years. It is to be hoped at the meeting of our next Legislature that each member of this Society will consider it his duty to do all in his power to have our former appropriation restored.

Fruit Show at Purdue University.—Owing to the lack of funds your Executive Committee is unable to offer a cash premium list for the coming winter's fruit show at Purdue. This is very much to be regretted, as I consider this one of the best ways the Society has to reach the farmers of the State, and the students who attend the university. Our former exhibitions there have attracted much attention, and I think will be productive of much good. I trust they may be continued in the future.

Purdue University.—Since the Horticultural Department has received its increased appropriation it has undertaken many new lines of work, among them demonstration work in orchards in different parts of the State; also the encouragement of the development of our native pecan, which work will be productive of much good to horticulturists throughout the State.

These Demonstration Meetings should be encouraged and given all the help possible. This Society should do all in its power to help advance the work of the Horticultural Department at Purdue.

State Entomologist.—The State Entomologist's office is also doing much better work with its increased appropriation. The nursery inspection has been very rigid, because this office now has the money and help to enforce the laws. While this may seem a hardship on the nurserymen, it will be productive of much good. It increases the cost of growing nursery stock, but it also teaches the nurserymen to take better care of what he grows, and the planter will get a better grade of stock, even though it may cost a little more money.

Supply and Demand.—According to Bradstreet's report, consumption of farm products in this country has caught up with production, so that in the future prices will be regulated more nearly by supply and demand. With the present high prices for all kinds of horticultural products and the country in the most prosperous condition ever known; with Indiana located in the center of the manufacturing district, and center of population, I can see nothing but a bright future for the fruit grower or horticulturist who will grow a good article and put it on the market in first-class condition.

In closing, I would say, devote more attention to your business and be satisfied with nothing except the best.

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INDIANA NEEDS MORE ORCHARDS.

Prof. H. S. CHAMBERLAIN, Indianapolis.

There is no gainsaying that our State needs more fruit orchards. To any one at all familiar with the fruit growing conditions in Indiana, there is a depressing lack of orchards of all kinds all over the State. Years ago it was the rule for every farmer of any consequence to set out an orchard as soon as there was sufficient space of cleared land to permit it. This orchard was then usually left to care for itself. The time is past when farmers or fruit growers can go complacently about their other work and let the orchard take care of itself. New conditions have arisen within the past twenty-five years that have revolutionized the methods of producing orchard fruits, yet there are thousands of farmers throughout the State who fail to recognize the new order of things and who persist in following the same even tenor of their way, trusting to Nature and chance to bring forth the fruit harvest. More orchards of all kinds are needed, but the ones needed most urgently are those producing apples. I was never more impressed with the woeful lack of apple orchards than I was last summer in my trips up and down and across the State.

The average Indiana apple orchard is a sort of apologetic affair, in that it is usually made up of trees or relics of trees set out several generations ago, or of young trees in bearing age, all receiving but little or no attention, except at ripening time, when the fruit that chances to hang on is gathered. Then the fruit is. as expert orchardists know, of a very inferior quality, due to attacks of insect pests and insufficient attention. A casual inspection of such an orchard almost invariably discloses neglect and indifference on the part of the owner. Here, one sees trees innocent of pruning, or if pruning is done at all, it is of the kind that does not prolong the life of the trees. Scarcely ever is the orchard plat fertilized, nor is it cropped, except with volunteer blue grass, and in many instances with briers and weeds. The nests of the tent caterpillar and webworm in the fall of the year are found decorating the forks of the outer branches of the orchard trees, proving conclusively that no attempt was made to destroy the nests and the insects themselves. Then the pernicious and insidious San Jose scale, together with the codling moth and fungus attacks, is usually found infesting the fruit trees of the neglected orchards. At first thought it may seem strange that these orchard conditions exist in our State, but upon introspection good reasons present themselves.

When farmers and land-owners, upon whose premises these excuses for orchards are found, are asked why they do not plant more fruit-bearing trees, the answer usually is: "There is no use to try to grow fruit in these days, because the San Jose scale will kill the trees before they come to

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profitable bearing age. One has to spray now-a-days in order to raise fruit. I haven't time for such things and I can make more money from grain crops, anyway. If I want fruit I can buy it from my neighbor or at the market." The time was in Indiana, when it was the bounden duty of the farmer to have an apple orchard that would at least produce enough fruit for the use of the family. The farmer that is without the apple orchard today, deprives his family of one of the best bounties that Nature affords for the enjoyment of rural life.

It is a lamentable fact that, as a result of this dearth of orchards in our State, we, as consumers of the royal fruit, are compelled to go outside of our borders to secure the supply that will satisfy the demand of the public in this direction. It is wholly unnecessary that this should be so. They tell us of the great fruit-growing interests of the Pacific coast states and of the great profits to be derived from the fruit business out there, and they try to persuade us that this is the region par excellence for fruit culture. Let us not be deceived in this matter. I have seen demonstrations that lead me to believe that Indiana can grow apples and other fruits equal to, yes, and superior to, any ever produced in the irrigated orchards of the far West. We have the soil and the climate for fruit growing, second to no other section in the United States, but we are lacking in the business acumen and the general application of the scientific methods pursued by our Western brethren. Instead of fruit growing being made an important part of general farming here, it is relegated to an extremely subordinate position, and there it is destined to stay unless there is a wholesome and thorough awakening among the agriculturists of the State. Instead of being an inferior part of the farmer's business, it should be on a par with that of growing corn and wheat. I have always claimed, and recent observations have borne out this claim, that more money can be made from fruit growing than from the grain grown on equal areas of land of the same fertility. The one drawback to fruit growing on the farm, as usually considered by the farmer, is that there are off seasons in which little or no fruit is yielded. It must not be forgotten, however, that these off years are more than compensated for by the seasons of abundant fruitage.

A few examples of what is being done in the way of commercial orcharding in Indiana might be pertinent at this point. One of the largest orchards of this kind is located on the Milburn farm, a few miles from Bristol, in Elkhart County. This farm comprises about 400 acres, of which 120 are devoted to the production of apples, pears, cherries, peaches, plums, grapes and small fruits. In a good season the income from this orchard is $10,000, and in an off year like that of 1909, it is estimated that the proceeds will foot up to between $4,000 and $5,000. This fruit farm has been under the able management of Mr. J. A. Matthews for nearly twenty

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years, and it goes without saying that only the most recent and approved methods known to horticulture are in full application here. While on a visit to this orchard last August, I saw the trees loaded down with peaches and plums, then in the ripened condition and in the process of preparation for the markets. There was no trouble from the ravages here by the scales and fungous diseases, as timely and continual spraying is the unbroken rule observed by this orchardist.

Near Greenwood, in Johnston County, is a promising ten-year-old orchard planted and owned by Samuel Billingsley. This orchard contains forty acres and shows every indication of being a good investment for its owner.

Down in Perry County, near Tell City, is the thirty-acre orchard of Fred Kreisel, in which is demonstrated how hilly land, difficult of cultivation, may be utilized in the production of valuable fruits. There are thousands of acres of what seems to be land unfitted for the carrying on of general agriculture that can be turned to profitable account in the growing of orchard fruits. Most of this land, as we all know, lies in the southern half of the State.

In Harrison County, near Depauw, one comes across the fine adaptation of high ground to orcharding. I refer to the thirty-five acre peach orchard of the venerable fruit grower, John S. Burgess. This man, who is now in the seventies, has in the past ten years made more clear money from his peaches than he hitherto made from the pursuit of general farming, covering the greater part of his life.

Near Oakland City are two good-sized commercial orchards, owned respectively by Dr. G. C. Mason and F. W. Kelle. The fruit from these orchards is eagerly sought after by the commission men of Louisville, Ky., because it is of a grade better than is usually found in that section. The commission men always pay these fruit growers more for their products than for fruits from other orchards, for the reason that the owners spray their trees at the right times, with the right kind of spraying solutions. The thirty-acre apple orchard of Robert Barr, located three miles southwest of Washington, in Daviess County, is an interesting plat of ground to visit. This orchard has been a source of good profit to its owner for the past ten years, and is now in the prime of its productivity, as the direct result of modern methods. Then, we all know what is being done by our own respected Joe A. Burton, in the way of successful and scientific apple culture. These, together with a score of others, including J. M. Zion's famous orchard at Clarks Hill, all show what can be done and what actually is done to establish and maintain a worthy record in fruit production in the Hoosier State.

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The present high prices asked and paid for apples, both wholesale and retail, are proof abundant of the crying need for more fruit orchards in the State. We can and should grow all the fruit to supply our wants. We have all the essentials except the general disposition to do so, and it is hoped that within the next quarter century we will not only be satisfying the people of this State with a fine quality of fruits, but that we will be exporting thousands of crates and barrels to other states and foreign countries.

There are a number of powerful agents busy shaping public sentiment towards this end. Prominent among these are the Horticultural Society, the Agricultural Press, the Horticultural Department of Purdue, and last, but by no means least, the work of the State Entomologist, backed by the present commendable laws. The Horticultural Society, through its bulletins and reports, is continually encouraging the farmers to plant more fruit trees and giving instructions in caring for them after they are planted.

The practical field demonstrations of the Purdue Department of Horticulture, together with the bulletins and lectures, are accomplishing a great deal of value to the farmer and fruit grower. Then the agricultural journals of the State never let slip an opportunity to impress upon the farmers the importance of fruit culture, along with grain and live stock farming. Since the recent laws having to do with the office of the State Entomologist have been passed, the fruit growing interests of the State have been given greater impetus. Orchard inspection, nursery inspection and bee inspection, all are proving strong allies of the farmer and orchardist. Many a farmer within the past year, who has been a little doubtful about setting out a new orchard, when it was shown him that he need not fear the onslaught of fungous diseases and insect pests, has taken courage to go ahead and plant fruit trees. A hearty cooperation of the farmer and fruit grower with the office of the State Entomologist is desired. The functions of this office are constructive and conserving, not destructive and meddlesome, as some seem to think. This part of the executive branch of our State government is intended to serve the people to the best advantage, and the ones directly benefited are primarily the farmers and horticulturists. Indirectly, the consumers of the product of the tree, bush and vine are also beneficiaries, in that fruits bought on the markets are of a better quality for having the control of the insect pests and fungous diseases lodged in the administration of the State Entomologist.

Reports from nurserymen throughout the State point to the encouraging fact that the demand for fruit trees, particularly the apple, is larger this season than it has been for some time heretofore. For a while there was little inquiry for apple trees, but now the tide seems to be turned in

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the right channel, so that the demand in this direction is brisk and lively, despite the truth that nurserymen have seldom ever asked and received as high a price for apple stock as they are getting at the present time. It is sincerely hoped that this is the beginning of a new era in the horticultural history of the State, and that before long we need have no reason for complaining that Indiana needs more orchards, and that we fail to produce enough fruit to meet the demands of our increasing and fruit-hungry population.

DISCUSSION.

Rev. Smith—I am reminded of one of my neighbors who is in the other room, if he is not in this room. He has seven Baldwin apple trees, from which he sold $229 worth of apples this fall, and he has seventy trees to the acre. I have long thought we were missing it by planting four or five hundred acres of wheat and corn and oats for the ravages of the crow and the bird. Fruit growing is very attractive and very pleasant, and when we are saying we cannot grow it we are simply confessing that we have never tried.

Mr. Snodgrass—I think the educational movement along this line has been taken up almost everywhere, and I'm sure it was needed very badly. There certainly was a great deal of ignorance over the country. I want to tell you that we went to one of our neighbors to get some apples and he would not allow us to have them until the wind had blown them off, and he seemed to think it would be a sacrilege to pick the apples off the trees. We have another neighbor that has an orchard of Spies, and these trees have been bearing for the last eight or ten years. He did not pick the apples and when these cold nights came on they froze and fell on the ground, and those apples are still on the ground. He had plenty to do and did not think they were worth picking up and taking care of. If you go out over the country and say anything about raising apples the farmers will tell you that if they would raise the apples they could not sell them, and that they cannot raise them anyhow. They have neither tried to raise them nor tried to sell them. I say that the people ought to be educated to the fact that they can sell all the apples they can raise, and educated to the fact that they can grow all of the apples that they can sell. I think people are beginning to waken up to this fact. If you go over the State and look at the orchards you will find the hogs and the sheep and the cows pasturing there—a veritable catch-all for the farm. You cannot expect to grow fruit in that kind of an orchard.

Mr. Milhous—I have heard people say that it was cheaper to buy apples than to raise them, and you can usually put it down that they do not grow

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apples at home, and they do not buy them of their neighbors or at market. Now I know what I am talking about. As you travel over the State of Indiana you will find that very few farmers have apple trees enough to supply apples for their own home. I have been over a great many portions of the State and I know whereof I speak. If the farmers would plant all of the apple trees that they really need the nurserymen would not have enough trees to supply the demand that would be made upon them.

Mr. James L. Keach—Mr. President, Ladies and Gentlemen: I was not present at the time the paper was read, and as to whether or not we need more orchards in Indiana, that is a question for you to decide. If I can give you any information that will make anything more clear to you as to whether or not we need more orchards in Indiana, I would be glad to give it to you, or any suggestions that I can make along this line, I would be only too glad to make. You understand that I am not an apple grower, I am an apple dealer.

Mr. Kingsbury—Tell us what proportion of the apples you buy and sell are grown in Indiana.

Mr. Keach—At the present time there is in storage in Indianaplis one hundred thousand bushels of apples, in rough figures. It will not vary many thousand one way or the other. Now this represents about three hundred thousand dollars. The bulk of these apples will be used locally, while a few will be distributed out to different points in the State. There are other cities that have storage plants, such as Vincennes, Evansville, Ft. Wayne and Terre Haute. All of these towns either have their apples stored, or use a great many apples. Now this will give you some idea of the demand for apples. Out of the one hundred thousand bushels stored in Indianapolis, I doubt very much if there is as many as fifteen hundred bushels of Indiana apples stored. Now there is a reason for that. One of the reasons is, and the main reason is that Indiana pays but very little attention to the production of apples as compared with many other states. There are very few commercial orchards in the State of Indiana, and even when we have a crop of apples there is not enough of them to interest buyers to come into the State and compete for apples, for the reason that sufficient attention is not given to the production of the apples. There is not enough spraying and cultivating done. Where a few of the orchards are properly taken care of, the rest are neglected and overlooked. Now this is a business proposition. The buyer who wants a quantity of apples can better afford to pay a good price to get them in one neighborhood, for the reason that he can handle them to better advantage, and can better organize his employes to take care of the crop.

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Apple growing not being given much attention in this State as a business, is responsible for the low prices which we pay to the growers. There is very little competition. As to the question as to whether apples can be profitably grown in the State or not, that is a question for you to decide for yourselves. In my thirty years of experience, from which I have gathered my information, both in this State and in other states, I don't think there is any question about your being able to raise good apples, and I see no reason why you should not raise them as cheap as they can be raised anywhere else. Twenty-five or thirty years ago apples were very profitable in this State, and it seems to me that there has not been a great change in the climate or the soil that would change that condition. I think the secret of it is that the birds have been driven away and it is necessary to resort to artificial methods to take care of the various pests and insects that prey on the orchards.

Now, as to whether orchards will pay or not, I can only show you by what I see in other states. It pays elsewhere so well that people continue it year after year and go into it stronger—those who have had experience. The days for cheap apples have passed. I don't think those days will ever come again when you can buy cheap apples, as in olden times. They used to sell at fifty, sixty or seventy-five cents per bushel. You may have these prices in Indiana when they do not have them elsewhere, for the simple reason, as I stated before, that you do not grow enough apples in Indiana to attract the buyers. My experience has been that good apples can be raised in Indiana. There is an orchard near Peru that has a good crop of apples this year. I talked to the man over the phone about them, but his prices, or his ideas as to prices, were too high, and I did not go up to look at them. I understand he sprays his trees and takes care of them.

If apples can be raised at a profit in New York, and in Pennsylvania, and if apples can be raised at a profit in the Western States, where they have to spend so much money, there is no question but what they can be raised in this State. The only thing I have to suggest to the apple grower is, if you expect to accomplish anything in your State in raising apples you must help one another. A man makes a mistake by being the only one to raise apples. If there were one hundred, his profit would be more, because there would be more competition among buyers, and not only his crop would be taken, but all of the neighbors' crops, and at a better figure, too.

There is another thing which I have in mind. Too much stress cannot be laid upon the proper handling of the apple after it is grown. The idea of putting a few good apples on the top of the package does not fool any one except the man that puts them there. Mr. Burton does not pack his

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apples in that way. Any commission man will buy Mr. Burton's apples without even going to look at them. He knows what they will be. I have bought his apples and felt that I was paying a big price for them, but the apples were worth it. You can accomplish nothing by sending to market inferior stuff. It is worth more on the farm.

It seems to me there are several varieties of apples that ought to pay big in this State, and that is especially true of earlier apples. Everyone of you who have raised Yellow Transparents and such apples for the last four or five years, know that you cannot help making money on them.

There is no question but what they raise good fruit in the West, but the fruit is not made, it grows. They do not raise all good fruit, but on account of the high freight for apples, naturally they send only the best to this market. I am satisfied that just as good apples can be raised in Indiana as in Washington or any of the Western States, if the same time and attention is given to the cultivation of them.

I do not know of anything else that I can call to mind that I think would be of interest to you. I can simply say that it is a paying business to grow apples at a fair price, and Indiana ought to have more orchards. There is no reason that I know of why Indiana should send three hundred thousand dollars, and it will be closer to five hundred thousand dollars, into Michigan and New England, other than that Indiana does not protect her fruit. If you can get any one in your neighborhood to set out a small orchard, even if it is only five or ten acres, and you have plenty of competition, you will get better prices for your apples, but unless you intend to go into the apple business to make money, I don't think it would pay you to bother. I don't think Indiana needs any more orchards to be neglected, for she certainly has enough of that kind now. I do, however, believe that Indiana does need more orchards properly taken care of. The owners should work in harmony with each other, and all should work to produce a good crop of marketable apples. As to the money feature, I don't know. I don't believe there is anyone present but what will agree that apples at a dollar and a half a barrel for the fruit is a right good paying business and will pay a man for the time and energy that he puts into them. I also notice in going around that the proposition of planting an apple orchard is not a proposition of waiting some eight or ten years for results. I notice in a few sections of the country that a man who has a pretty good-sized orchard on his farm generally calls the attention of the buyer of that farm to the fact that it has an orchard so many years old, and for that reason the farm is worth a good deal more than without it. So, as a business proposition, it does not look bad. I have in mind an orchard in Greencastle that was an Indiana orchard until a Michigan man bought it, and I haven't

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seen it in the last few years, but I believe it is a pretty good orchard. I know that it is producing good apples. I don't believe the owner has had what might be called a total failure in the last four or five years.

Now, if there is any information that I can give you on the marketing of apples, or anything of that kind, I am at your service, because I feel that my interests to a very great extent are in common with yours. I don't have to have your apples if you won't raise them, for I can get them somewhere else, but I would rather spend my money in Indiana than anywhere else on earth.

Joe A. Burton—This Society has been working for a number of years trying to get the farmers of Indiana to grow more apples, but they don't seem to take the interest they should. Do you have any idea why this is the case?

Mr. Keach—Not unless it is because they can get more for wheat and corn.

Rev. Smith—Would you recommend an orchardist to plant a great many trees of one variety or a great many varieties?

Mr. Keach—If you plant apples for commercial value, be sure to plant enough of one variety to have something to offer. For instance, if you plant a small orchard, it would be a great deal better to plant all of one variety and buy what else you want. You must have enough to interest the buyers. A corn buyer will not go where they do not have corn, nor a wheat buyer where there is no wheat, but they all go where they can procure their crop. Now, by all means, get away from the idea of planting apples because you like the flavor of them. An orchard of only four or five trees of a variety is worse than no orchard at all, unless you expect to market it right at home in your local market. I think a man going into the business extensively enough to be called a business should plant early as well as late apples. There are several reasons for this. One reason is that for several years the early apples have been bringing very big prices. It is nothing out of the ordinary for the Yellow Transparents to sell as high as two dollars a bushel. Then, too, in taking care of the early apples you have your men organized to take care of the heavy crop in the fall. So that it helps in more than one way. There are not near enough early apples raised to supply the demand at anything like a reasonable price, and I don't believe there is anyone present that will not agree with me.

Mr. Hazelett—You have had a good deal of experience in handling apples from Indiana. What varieties would you consider best for a commercial apple, year after year?

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Mr. Keach—Not unless it is [illegible] is the most profitable
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Rev. Smith—Would you [illegible] there is any question about
many trees of one variety [illegible] no question about that. I

Mr. Keach—If you plant [illegible] Golden, for the reason that
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right at home [illegible] any variety of a Ben Davis is good.
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[illegible] really [illegible] the fruit, why then you will notice an

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Mr. Keach—I would be afraid to say. I am just enough of a human being not to enjoy being laughed at, but still I will say that for a commercial apple I would choose the Ben Davis, and there is a reason for this. The Ben Davis is an apple that is not understood. The Ben Davis is a good, healthy tree, and I had this in mind when I spoke. You need not raise this apple to eat if you don't like it, but raise it to sell. The Ben Davis is a very marketable apple, it is a commercial apple, and there is a reason for this. First, it has the keeping qualities, and second, it has the appearance. Outside of Indiana they have a great deal of respect for the Ben Davis, because they do not use it until it should be used. If you undertake to use it in the fall of the year you might just as well go out and cut out a chunk of wood and try to eat that. There wouldn't be a great deal of difference between the two. But if you will take this apple and put it into storage and hold it until January, you will find it altogether a different apple. The flavor will be entirely different, as each of you know if you have tried it. It is an apple that can be shipped a long distance and can be held until late in the season. The color of the apple is attractive. A crop of Ben Davis apples harvested at the proper time, and picked as they should be picked, and put into cold storage where the temperature runs to thirty-two, will keep without a decay of any importance. The fact of the matter is, if the apples are picked properly there should not be more than three to five per cent. shrinkage in the apples from the time they leave the orchard until they are consumed, between October when they are harvested, and April, when they are consumed. The Ben Davis apple is the favorite for European trade, largely because of its keeping qualities. But, as I say, the Ben Davis apple is not liked by people who try to force them into use before their time comes. They try to use them in October because they have them on their farm in a great many instances, where if they would use them in January or February or March or April or May, they would find an altogether different apple.

Prof. C. G. Woodbury—One question on the marketing end of the business. I would like to ask whether, under Indiana conditions, with our opportunity to sell seconds as well as firsts, in your opinion it would pay Indiana apple growers to try to pack their apples in the way the Western people do, in boxes, especially?

Mr. Keach—I do not think the box would be a desirable package for the Indiana shippers to local markets, for the very simple reason that to start with, the box is expensive and it is not so attractive as a nice, clean bushel basket, which is also a cheaper package, easier put up, and for that reason I don't believe the box is worthy of consideration. However, I would like to say there is a question with me as to where the one's leave off and the

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two's begin. I do not think you should divide your apples into these classes if the two's are to be worthless apples. If you divide so that the one's are perfect apples, and the two's are good, that is all right, but if the two's are to be gnarly, knotty, wormy stuff that has no value since the pure food law went into effect and they will not allow them used for apple butter because they are not fit for that or anything else, you are wasting your time, for it will not do you any good, neither anyone else, and to pay freight on such stuff is just that much money thrown away. But a man raising a crop of apples that will separate into one's and two's, will be surprised at the small percentage of two's he will get, provided he takes good care of his apples. This has been my observation.

Mr. Hazelett—Did I understand your answer to my question to be that there is only one commercial apple in Indiana?

Mr. Keach—No; but in my opinion the Ben Davis is the most profitable commercial apple that I know of that is grown in Indiana. Now there are three or four varieties that I consider good, such as the Jonathan, the Grimes Golden, the Duchess—I don't think there is any question about them—and the Yellow Transparent—there is no question about that. I have understood there is some about the Grimes Golden, for the reason that the life of the tree isn't long enough.

A Member—How about the Gideon?

Mr. Keach—It is very good. As to the Grimes Golden, I am not in any sense an authority, and while it is an attractice apple, it is one that should be moved speedily, and it is not long-lived. It would be all right to plant the Grimes, but I shouldn't want to have a great many of them.

A Member—How about the Black Ben Davis?

Mr. Keach—In fact, any variety of a Ben Davis is good.

Mr. King—How about the Wealthy?

Mr. Keach—There is no better commercial apple than the Wealthy, and it finds a ready market.

Prof. Troop—Have you noticed any improvement in the last half dozen years in the sorting and picking of apples as they come to market?

Mr. Keach—Well, I haven't noticed any great improvement. There is a reason for that. It is not because the grower means to deceive any one; it is because he does not know any better. It is because he has not been educated on that feature. When the grower has been taught the importance and significance of properly packing his fruit, and has been taught that that is really a part of the value of the fruit, why then you will notice an

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in such apples as the Grimes Golden and the Jonathan, he could afford to grow them and put them into boxes; and still I think they would sell possibly as well if they were packed in barrels, in fact I am sure they would.

Gentlemen, I thank you. (Applause.)

Secretary Flick—There have been three questions handed to me for the question box. No one is asked especially to answer them. This is the first one:

I. What caused the general failure in the apple crop last season?

Chairman Reed—I will call on Mr. Burton to answer this question.

Joe A. Burton—This is a pretty hard question. I have seen it answered lots of times, but I don't know that the answers were right. Nineteen out of twenty attribute to the dry weather the last season the killing of the fruit, but my observation did not indicate that this was the truth. In our own orchard we have a north end elevation and a south end elevation, and the center is a valley. The valley, of course, was more moist, but most of the apples were on the north, and almost none in the valley. I noticed in some other places that it was not the places that had the most moisture that produced the best apples. I will give you as my opinion that I don't know and you don't know, and I think that will settle it. The best thing is not to say any more about it. I have a bulletin at home from New York, and it tells why the apple crop failed for so many years, but I am afraid they don't know. I know lots of times you will read that the crop was killed by a late spring frost, and I know that a great many times that is not true. Now I have settled this matter—you don't know and the rest of us don't know.

II. Give us a clear description of the gypsy moth.

Prof. Troop—I don't know that I can give a very good description of it, so that you would know it when you see it. The moth is about as large as the canker-worm moth, perhaps a little larger. The male and female are quite different in their color, the female being a light color and the male a dark color, and smaller than the female. That is about all I can tell you about this moth. It is about the size of a good-sized cutworm. They have little markings, and the male and female are so different they look as if they belonged to a different species.

Chairman Reed—Would you also describe the nest that it makes?

Prof. Troop—I don't know that I can describe the nest so that it would be of any value. The only one that I ever saw was one that was sent to me.

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Secretary Flick—We will have a picture of it here tonight in color.

III. How can pear trees that are full grown be made to bloom and bear?

E. Y. Teas—Nobody knows.*

Meeting adjourned till 7:30.

A MORE BEAUTIFUL INDIANA.

Stereopticon lecture by HOWARD EVARTS WEED, Landscape Architect, Chicago, Ill.

The lecture was excellent and contained much that is worthy of consideration. Fine stereopticon views illustrated and emphasized the lessons.

FIRST IMPRESSIONS ARE LASTING.

Mr. Weed began his lecture by calling attention to the fact that the first impression a stranger gets of a city is the most lasting impression, and for this reason the railway stations should be attractive features of city adornment. Many of the railways are spending considerable money in making attractive station grounds, as people prefer to travel amid scenes of beauty. By means of the stereopticon he showed pictures of railway stations in Massachusetts and other states with green grass, shrubs, the station building and a skyline of trees in perfect harmony. He then showed a photograph of another railway station ground where absolutely no attempt has been made at beautification, remarking that such an approach to the city would make one feel like getting out on the return train.

MORE BEAUTIFUL CEMETERIES.

Mr. Weed then touched upon the subject of cemeteries, stating that the larger cities of our country were becoming filled up with cemeteries and looking to the future of the matter we must pay more attention to having our cemeteries park-like, rather than graveyards that are so common today.

"God's acre should be the grand beauty spot of a city. It can be easily made so if we just get out of our fourteenth century methods. Let green grass be the predominating feature, with trees and shrubs in harmony." Mr. Weed does not believe in monuments. "If we pass out the good deeds and kind words as we pass along in life, we will not need a stone to mark

*The rational procedure in such cases is first, of course, to determine the cause of non-fruit bearing. This may be due to unfavorable site, an unbalanced food supply (possibly too much nitrogen, which forces a wood and leaf growth at the expense of fruit bud formation) or some other determinable cause. Frequently the Old World practice of girdling or ringing is followed by the desired result when more general methods fail.—Secretary.

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our grave." But he does believe in memorials to the dead consisting of parks, public playgrounds, libraries, public baths and other practical and useful things. He called attention to the gift of Moore's Park in Lansing, Mich., at the entrance to which the donor has placed this beautiful sentiment: "I expect to pass through this world but once. If, therefore, I can do any good to my fellow men, let me do it now, for I will not pass this way again." No copings or fences should be allowed around any or the lots. The alleyways and lots should be on the same grade. There should be no foot stones and the head stones should be even with the ground, so as not to appear in the landscape. Then the monuments should have a background or setting of shrubs. We would then have a park-like cemetery of which we might well be proud.

TREES ADD TO A CITY'S BEAUTY.

Details of tree planting and management were given at some length. The proper pruning of trees was explained, showing how a limb should be taken off close to the trunk in order that the wound may heal over rapidly. The tree butchers do much damage in many localities, one picture being shown of how the tree butcher gave the trees "a fifteen-cent haircut." Two slides of the beautiful Champs Elysees of Paris were shown, with its trees lining the avenue. Also street scenes of Washington and East Orange, N. J., showing a uniformity of trees along the street. Mr. Weed advocated the appointment of a city forester to have charge of all the trees along the streets of the city. The city forester and the superintendent of parks might be the same official, under the control of the Park Commission.

MORE PARKS NEEDED.

On the question of public parks, Mr. Weed first showed views in parks all over the country, from Central Park in New York City to the Yellowstone National Park in Wyoming. The pictures brought out many points as to the planting and arrangements of parks, showing that green grass should be the central feature, with planting of trees and shrubbery along the sides so as to shut out city conditions.

PROPER HOME SURROUNDINGS.

"The success of every man largely depends upon two women—a loving mother and a devoted wife. Ninety-five per cent. of the lives of our mothers, wives and daughters is spent in the home. If, therefore, we can do anything to make our homes more comfortable and pleasant, it is our duty to do so." Mr. Weed then showed pictures of neat homes and explained the proper placing of a home upon a lot, the proper planning of the

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trees, shrubs and flowers. Nothing should be planted in the center of a lawn; let green grass be the one feature here. But next to the house foundations should be planted a group of shrubs in order to make a connecting link between the grass and house. Then along the border line should be placed trees and shrubs in order to create beauty, to hide unsightly conditions and give privacy to the home. Shrubs should be planted in groups to show a mass effect. Never plant trees on the home ground in a straight line.

CLEAN BACK YARDS IMPORTANT.

An improvement to a back yard was shown, the cost of which was sixty-five cents. "Many people say that they can not afford beautiful things on account of their cost. Beauty and cleanliness is not nearly so much a question of cost as it is of inclination. If we have the inclination, I am sure we can obtain the cleanly back yards." The tin cans so common in the back yards are the breeding places for mosquitoes, and the flies, which distribute typhoid fever and are otherwise such pests, are bred in the manure piles which are allowed in the city. We are only just beginning to learn how to live. We have heretofore been engaged in the problems of making a living, irrespective of the conditions with which we are surrounded. But now we are beginning to get more out of life, to be more practical in our ideas and thus see the importance of better living conditions.

GETTING THE CHILDREN INTERESTED.

Mr. Weed stated that the various local improvement associations of the country have found that in order to get the children interested in civic work, flower and vegetable gardens must be started for them. Free seed is distributed in the spring and then in autumn various prizes are given to those children who cultivate their gardens. In this way the children are kept close to nature; they learn something of the A, B. C of agriculture and become interested in civic beauty. He touched on the subject of school adornment, stating that more attention should be paid to the school grounds and not to have such bare grounds as is so often the case. "Also, we do not co-operate with the school teachers as we should. Too often when we send our children to school we wash our hands of their education. A child should get as much of an education in the home life as it gets in school."

PLAY GROUNDS NEEDED.

Many photographs of play grounds in Chicago and other places were shown. Mr. Weed evidently has the subject of play grounds for children at heart, for he spoke at some length on their necessity in any locality.

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"The object of a children's play ground is to keep them busy from the time they get up in the morning to the time they go to bed, absolutely tired out at night. The tramps of today are the idle children of yesterday. The busy boys of today will become the business men of tomorrow." It is said the dying words of Cecil Rhodes were these: "So much to do, so little done." I know nothing of the boyhood days of Cecil Rhodes, but from the fact that he accomplished something in life, I believe that as a boy he played hard when he played and worked hard when he worked. So keep your boys and girls busy in order that they may become useful men and women.

MANY CIVIC IMPROVEMENTS SHOWN.

Then followed picture after picture showing points in civic improvement work. The bill boards were hard hit as being money thrown away in advertising, the proper place for advertising being in the newspapers. A view of a business street was shown with its mass of overhead wires. Mr. Weed stated that these wires should be buried under the pavement, and in the resident portion of the city the wires should go in the alleys. The city hall of Dallas, Texas, was shown, showing ugly advertising signs surrounding it. Clean-up day was mentioned as being a good thing, "but we should have just 365 of them every year. Dirt is the most expensive commodity a locality or an individual can possibly enjoy, and unless we are millionaires we cannot afford to live amid unsanitary and filthy conditions." The street corners of Oklahoma City and Des Moines were contrasted, showing steps at the curb in one case and no steps in the other.

MORE CIVIC PRIDE.

Mr. Weed believes in the future of Indiana. "There are many pleasing features of this State. The possibilities for a beautiful State are very great if you but take advantage of them. Nature has done much here. Let us co-operate with nature. Let all help along this city beautiful movement. Let each be a booster. If you do not think that your city can be made one of the most attractive places of earth, then get out or die. The journey from cradle to the grave is but a short journey at best. If we live amid cleanly, beautiful and sanitary conditions, we will not only get more out of life as we go along, but will be all the better prepared for the enjoyment of Heaven."

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SOME DISEASES OF THE APPLE.

BENJAMIN W. DOUGLASS, State Entomologist, Indianapolis, Ind.

(Many points in this talk not clearly brought out in the following text were illustrated by lantern slides.)

In the first place the title of my talk was incorrectly printed in the program when it said that I would talk on Plant Diseases. I am only going to talk about one very small phase of plant diseases, and am going to show you a few pictures of some of the most important diseases of the apple. These diseases constitute some of the most important fungous troubles that the orchardist of Indiana has to combat. There seems, however, to be a real need for a broader knowledge along these lines. Some of the men who have been growing fruit in Indiana for many years are really not familiar with the various diseases they are trying to fight every season. The best apple growers in the State are spraying their orchards for the codling moth, the apple scab, bitter rot and a few other things, but they are doing it in more or less of a hit or miss fashion. The Bordeaux mixture has been a kind of "shotgun prescription" for all sorts of fungous diseases, and while it is a "shotgun prescription" it has been a pretty good one. We have today practically nothing any better than the Bordeaux mixture to recommend for the different fungous diseases which we are trying to control. For the last year or two we have used the lime and sulphur solution, and it has come into a great deal of prominence as a fungicide.

And to my mind it is more promising than anything which we have. I think there is a strong possibility that it will entirely replace or displace the Bordeaux solution as a fungicide.

But to proceed with the consideration of a few of the special diseases I will show you first an apple that has a disease which is new to us in Indiana and has come into the State from the South, known as the apple blotch. This is a disease that in some of its stages might be mistaken for the apple scab. It first makes its appearance on the fruit as a small light brown or brownish yellow spot, and these spots are always of a characteristic shape which is rather well illustrated in the photograph which we have here. You will notice that the spots are star shaped, the outline is not definite and the entire blotch has the appearance of having been spattered on the apple. This picture shows the disease a little farther advanced, and the lower portion of the picture shows the characteristic cracking of the apple on the inside. You will notice that the deep brown blotches always have that characteristic spattered appearance noticeable in the apple blotch, and there is a system of brown radiating lines run-

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ning out from one common center. This disease, like the apple scab, is caused by a specific form of fungus that gains entrance to the apple and, starting from a small spore, will develop and form these characteristic diseased patches. The disease is superficial; it does not penetrate deep into the flesh of the apple but it mars the surface of the fruit and makes it practically unsalable on account of its appearance. The disease of the apple blotch does not extend into the meat of the apple, while that of the bitter rot penetrates the entire fruit. However, in the apple blotch we frequently have cracks occurring close to the diseased area, and they merely mean a convenient point of entrance for the other forms of fungus which are rot producing and will cause the destruction of the entire fruit. The blotch does not seem to be carried from one apple to another, so that it is not a particularly serious disease considered from a storage standpoint. It is of course an exceedingly serious thing to the orchardist, the man that is growing the fruit, but it will not spread from one apple to another in storage. Some of the other diseases will. The same fungus which causes these blotches on the apple will attack the twigs of the tree, even the large branches, and cause this characteristic canker. This carries the disease through the winter and distributes it the next spring to the young fruit. The same disease also causes a slight spotting of the leaves, but the leaf damage is so small and so inconspicuous it has received but little attention, and really is of very minor importance. Now so much for this disease and what it is.

The point in regard to any plant disease that every practical orchard man is interested in is how to get rid of it. As I said, the blotch has come into the State from the South. I understand that in some of the southern states it is regarded as their most serious apple disease not only because of the effect on the fruit but on account of the effects on the tree, the canker often spreading to the larger limbs and killing them. I am not sure that I have found this disease north of Indianapolis, and only a few miles at any rate, although I have found cankers on twigs in Peru, Indiana, which were suspicious. I don't believe that it occurs that far north in the State, but it is undoubtedly spreading. It was noticed this year for the first time by our department, and for the first time this year it has been decidedly a serious thing with the commission man.

The commission dealers in Indianapolis say that the apples that came from southern Indiana this year were almost universally affected with this disease, and a great many were unsalable on that account. I don't believe that anyone has very clearly worked out the control of the apple blotch in this State, and we can only quote the government on that point. The government bulletins recommend that four sprayings should be made for the complete control of the disease, and that the first one should be

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three or four weeks after the petals have fallen. It seems to me that the disease attacks the fruit later than most of our other diseases, and that for that reason the first spraying that is recommended for it is three or four weeks later than the first spraying for the codling moth. The second spraying should be two weeks after the first spraying, and the third and fourth at intervals of three weeks. The Bordeaux solution which is recommended for this purpose is our standard Bordeaux solution. There are a

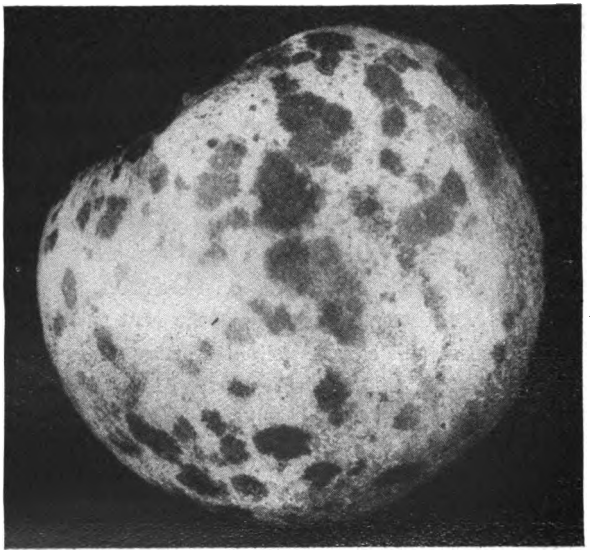

Fig. 4. The sooty-blotch fungus on apple. This is a surface fungus and should be treated with Bordeaux.

number of standard ones. I recommend six pounds of copper sulphate, four of lime and fifty gallons of water, to be dissolved in separate quantities of water and added together. There are variations from this formula, and considerably weaker solutions have given apparently the same results. I don't make a point of argument as to that formula at all, but we recommend six pounds of copper sulphate, four pounds of lime and fifty gallons of water. Of course this disease should be looked for and destroyed wherever it is found. As far as spraying goes, success will depend upon the thoroughness with which it is done. This applies to spraying work, and for that matter to all kinds of work—success depends upon the thoroughness with which anything is done.

The most destructive disease of the apple is the bitter rot, and as most of you are familiar with it you ought to know that this is true.

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It, like the apple blotch, is a fungous disease starting first on the surface of the apple and later penetrating into the interior and ruining the entire fruit. It not only spoils the appearance of the apple but renders it absolutely unfit for any sort of use. The bitter rot is very often associated with another rot which destroys the fruit simply by cracking the flesh open and exposing the interior, giving a point of entrance for spores of various fruit destroying fungi. This is a disease which occurs practically over the entire State, and is to be found in almost every orchard in Indiana, I think. I was a little surprised this fall on going into an orchard of one of the most prominent fruit growers of the State. I had been told that he did not have any bitter rot in his orchard, and almost the first apple I picked up had the disease, and I was able to convince him that I was correct in my diagnosis of it. The bitter rot starts usually as an inconspicuous bruised area on the apple, and the disease progresses from this, working on the surface and then eating into the fruit internally and destroying it altogether. The bitter rot also forms a characteristic canker on the branch and the twig of the apple, and it is far more difficult to definitely name the bitter rot canker than it is the canker of the apple blotch. There are a number of other canker producing fungi that produce cankers similar to the bitter rot. Very frequently we find associated with the bitter rot another fungus, which causes the rotting of the fruit, known as the black rot. It works more rapidly than does the bitter rot. Both of these rots, however, are injurious to stored fruit and always are to be guarded against when fruit is put away for storage. The black rot of the apple is spread from one fruit to another, and a barrel that has a few affected apples at the beginning of the storage season may be rotted to the bottom when it is finally opened. Cold storage will prevent the development of any rot disease or fungous disease if the apples are kept cold enough, but not every Indiana horticulturist has the opportunity to place his apples in cold storage, and for this reason he has to be exceedingly careful of the fruit he puts away, and he should be sure that it is free from anything like the black rot or the bitter rot if it is going to be free from this rot later on in the winter. Both the black rot and the bitter rot are to be controlled by similar measures which I suggested for the apple blotch, with the one exception that the spray should be applied just after the petals fall for either the black rot or the bitter rot. This spray should be applied just after the falling of the petals, at the same time when I would spray for the codling moth, and in this way you will be able to reach not only the two diseases, later the apple blotch, but also the codling moth. Frequently you will find that a small spot of the black rot or the bitter rot will gradually enlarge into a larger spot, forming, as it goes, circles of diseased tissue. The possibilities are that these concentric circles are pro-

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duced by the fact that the fungus will grow rapidly during the warm period during the day, and when the night comes it will cease to grow, but it will start up again the next day when the warmth comes. In this way it will spread out from one common center, producing a series of circles and forming the characteristic spot on the apple.

Another injurious disease, but almost purely one of stored fruit, is what we know as the brown rot. It is also known as the soft rot of the apple and is caused by the same fungus which causes the brown rot of the cherry in the summer time.

The common fruit mould is also sometimes a serious thing in stored apples, but there must be also a large amount of moisture present and a certain amount of heat, so the apple house should not only be kept cool but should be ventilated to prevent a disease of that sort. I have seen places, however, where this mould (Penicillium) had got started in the apple house, and it was exceedingly difficult to protect the fruit that was stored there. In a case of that sort fumigation with sulphur would be the most effective means of restoring that storeroom to a healthy place for storing fruit.

The next disease that I will show you is the apple scab, one long recognized as the most injurious of the diseases which we have. In spite of the fact that the apple scab does not as a rule penetrate below the surface of the fruit, but simply runs along the surface, it renders the fruit unsalable. The apple scab is one of the fungous forms that also attacks the leaf and the twig, and the form of the fungus that grows on the leaf is of decided importance, inasmuch as the disease is carried over the winter on the dead leaves that are in the orchard lying on the ground. The fungus as it exists in the dead leaves will start to grow early in the spring and will throw out spores during the first warm weather. These spores will be taken up by the wind and carried to the fruit, and the disease propagated on the apple spreads back to the leaves, and the leaves will carry it again over to the next year. Possibly the most satisfactory means of destroying the leaves in the winter is simply to plow the orchard and turn everything under. That will destroy a great many of the diseased leaves, but not all of them. If the orchard is badly infested with the apple scab the chances are that plowing the leaves under will not be an absolute means of control at all, and it should not be depended on to more than check the disease, but by doing that it at least gives the orchardist an opportunity to get in some good work when he sprays his orchard later on. The first spraying should be earlier than any spraying recommended for the other diseases mentioned, and should preferably be made in the spring before the buds have opened at all.

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Then follow that with the regular spraying for the codling moth and bitter rot, using a poisoned Bordeaux mixture. The subsequent treatment for the apple scab would be practically identical with those of the other diseases that were mentioned. In connection with the apple scab we often have another disease that is in a way parasitic on the apple scab fungus, that is, it attacks only fruit that has formerly been attacked by the apple scab. This disease, which we know as the pink rot, develops on the spots where the apple has been in a measure destroyed by the apple scab fungus. This disease occurs not only in the orchard on the growing fruit, where it is usually worse in damp weather, but will also develop on fruit that has been stored, especially if it is not kept very cold and dry. We have been able to develop the disease in the laboratory without any difficulty at all

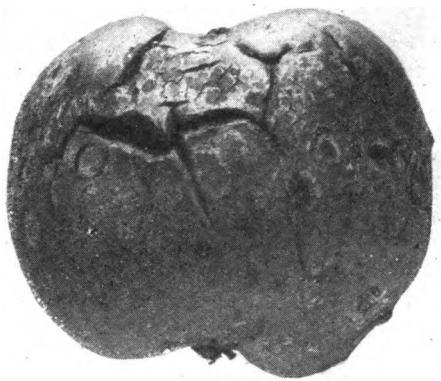

Fig. 5. Apple badly affected with the scab fungus. Spray with Bordeaux mixture.

on the apple scab fruit collected from most of the localities in the State where the disease is not especially common in the orchards, although in severe seasons it is sometimes very disastrous. The fungus starts as a whitish mass over the spot where the apple scab has worked, and this spot later turns a delicate pink color.

Another disease of the apple which is not especially common in Indiana, owing to the fact that there are not so many Baldwin apples raised here as some other kinds, is the "Baldwin fruit spot." This is a disease about which we know very little, and for that reason as much as anything else we call it a "physiological" disease. The disease occurs only on the fruit of the Baldwin and exhibits itself as a small sunken patch that might

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probably be taken for the apple scab. The apple scab fungus is, however, not present at all and it does not behave as the apple scab behaves. No system of spraying will in any measure lessen the severity of the disease, and it is one of the things that we simply have to "grin and bear" if we are growing Baldwin apples. It has been extremely injurious throughout the East, in certain parts of New Hampshire especially. The spot occurs not only on the surface of the fruit but is all through the flesh of the apple. If the disease occurs on any other variety of apple I have never seen it.

Perhaps the most injurious disease to which the apple as a tree is subject is the crown gall. It is purely a bacterial disease capable of being spread in the grafting of the tree. The disease usually starts at the point where the tree is grafted or near there, and forms characteristic hard knots on the root of the tree and on the stem at the point of the graft. This is exceedingly common in nursery stock, and if it is going to be present on the tree at all it will be present when the tree is planted. I don't believe there is very much chance of a tree being attacked with crown gall after it has come from the nursery in a clean condition and has been planted in a careful manner. Consequently the thing to do is to see that you get a tree that is free from the disease at the start, see that the tree is free from the disease when you get it from the nursery. Our certificates are supposed to cover this disease along with other injurious plant diseases. It is a disease that in the nursery is almost impossible to detect, especially when the disease is in its incipient stage. On a three or four-year-old tree that is badly affected with crown gall I or any of my inspectors will probably be able to recognize the tree at a glance and know what is the matter with it. On a two-year-old plant, even if badly affected with crown gall, if the roots were well covered up I don't believe any one living would be sure of it one time out of a hundred; consequently we have to depend very largely upon the integrity of the nurseryman to throw out those trees when he digs them. In case he fails to do that and sends out trees affected with this disease, or any other disease of the kind, I believe we would be justified in revoking his certificate. It is a case where we have to put the nurseryman on his honor not to send out stuff of that sort. Very often we find that it is present, and we require that an affidavit be filed stating that the diseased stock has been destroyed, and then we have a double hold on the nurseryman through the nursery laws of the State and through the criminal code of the State where the violation of such an affidavit would constitute a charge of perjury, on which nurserymen could be prosecuted.

The crown gall is located at what we may know as the crown of the tree, or the point where the stem joins the root system. We have often very marked knots appearing farther down on the root of the tree, clear

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down in the ground. Sometimes the crown gall will follow the root system down. Very often, however, the crown gall is associated with the woolly louse, which is a parasite on the roots of the apple and which causes galls on the roots.

It might be mistaken for crown gall in some instances. The root louse on the apple is another thing that we have to depend upon the nurseryman to throw out when he digs the trees. We can distinguish a certain amount of it in the nursery inspection, but not all of it by any means. It is simply a case where we have to put the nurseryman on his honor again. The crown gall being a bacterial disease it will remain in the soil year after year, so that it would be bad policy for the nurseryman to plant that particular field with apples again if he had been bothered before, for it will be certain to bother another crop of the same sort. This is a point in apple culture that will apply to every man who grows apples in any way at all. I don't believe, however, that there would be any special danger in replacing a tree that had died in the orchard of crown gall with another apple tree, inasmuch as the apple tree that was planted would be a clean rooted specimen and there would be no opportunity for the bacteria to gain entrance to the tree. So there need be no fear on the part of the orchardist in replacing a tree that has been killed with crown gall. In case a tree is obtained from the nursery that is infested it may live a number of years. If a perfectly healthy tree and a diseased tree are planted side by side it is possible that for a good while you would not see much difference in the two trees. It is probable, however, that the diseased tree would not last more than a few years. I have seen apple trees twenty-five years old that were dying of crown gall and nothing else apparently as far as we were able to ascertain. Of course the trees had not borne as many apples as they should, still they made pretty respectable growth, but at the end of twenty-five years they were showing the effect of the disease. It has been a year since I have heard from the disease, but I suppose by this time they are perfectly dead.

One other disease of the tree that I wish to speak of is what we call nectria. The first appearance of the disease is as a slight sunken oval area extending lengthwise on the trunk of the tree. The external skin remains intact but is distinctly depressed. Often this depression will extend completely around the tree, causing its death. All nursery stock should be carefully examined before being planted, and if the disease is found the affected specimens should be destroyed. This disease attacks a great many varieties of trees besides the apple, and as a rule it attacks a tree very early in its life. It is a disease that I have found far more common in the nurseries than in the orchards; in fact I have never found but one orchard that showed any signs of this disease at all. This is probably due

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to the fact that attacking the tree in its earlier stages it kills them simply by girdling the stem so that it would die the next year and destroy the tree for any future growth. This is a disease for which we are constantly on the lookout in the nursery, and during the last year we have found quite a good deal of it. Wherever it was found the nurseryman was required to destroy every tree that showed any trace of it, and in a good many cases we destroyed the trees for them so as to make sure of the matter there and then. At any rate, wherever this was found the nurseryman was required to file an affidavit stating that none of the diseased trees would be sent out.

Another disease of the apple is called root rot. The root rot of the apple is caused by any one of several different toadstool fungi. Some are edible and some are not so at all, but they are all toadstool fungi of one sort or another. One of the most common ones very frequently attacks the native trees in the forest, forming parasites on the roots. It is frequently sought by mushroom lovers to eat. Where the orchard is planted in ground of this sort recently cleared the chances are it will be more or less bothered with root-rot disease. In the picture which we have here we have rather a big tree that has been destroyed—a tree that I believe was five or six years old. Very often it attacks a tree later in its life, and as a rule five or ten years will show its most disastrous work. It may come earlier and it may come later. The probabilities are that the rot is worse on the Grimes Golden than on any of the other varieties, and it has been suggested that for that reason the Grimes Golden had better be top grafted on to some other sort of a tree that is not so susceptible to the rot disease. We very frequently find a farmer who says that he has been trying to get an apple to grow in a certain locality for several years, and has planted apple after apple and all of them have died. Almost invariably his trouble there is the root-rot disease, and whenever a tree has been found to have been killed with this disease it will be useless to replace that tree. Plant something else there—anything but the apple. Of course if you replant with the apple you will be almost certain to have this disease.

The only other thing that I would speak of in connection with apples is the apple blight, which is caused by the same species of bacteria that causes the blight of the pear, and which is to be fought in the same way—that is, to cut out the diseased portions of the tree and burn them. Very often the apple blight is confined to a much smaller area than is the pear blight, and we find that only the twigs are diseased, and this calls for a certain amount of pruning of the smaller twigs, so that the blight is not to be feared as are some of the other diseases with which we have to contend. While we are constantly finding more of these plant diseases and more and more injurious insects and all that sort of thing, it seems to be a

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discouraging proposition, but while we are finding more things to fight we are finding more and better ways to fight them. I do not consider that the outlook for Indiana fruit is at all discouraging. Mr. Keach said a number of things that I would like to say relative to fruit growing in this State. You can grow just as good fruit here as any place, and in the West they grow just as bad fruit as they grow in Indiana. The thing is that the people who are growing fruit have got to *grow fruit;* they cannot give their attention to something else and monkey with their fruit. As a general thing that is about what is done; the fruit is the last thing that is given any attention on the farm. I was in a fine orchard this fall that had the only fruit in the neighborhood, and yet the trees were abused. There was so much fruit on the trees that they were breaking down, and the man said he knew he should have thinned it but that "he didn't have time to get at it." If he had thinned that fruit he would have had five times over what he was making with any other crop on the farm at that time. But he did not "have time" to thin this fruit or time to spray it.

I feel that there is a hopeful outlook for the fruit grower in the State, and we certainly want the cooperation of the fruit growers. We have laboratories for the identification of the plant diseases and insects, and we want specimens of anything you are in doubt about. That is what we are here for, and we are glad to have you send in your specimens. I, like Mr. Keach, would suggest cooperation. Don't try to be the only man in your community who has an orchard. Get your neighbors to have one and get into a position where Mr. Keach and the other commission men will want to come to your section of the State and buy fruit from you. You will get better prices and by cooperative work you will get better fruit.

DISCUSSION.

Joe A. Burton—Professor Douglass, you stated that brown rot was not very common on fruit except when it was stored. Sometimes we have nearly every apple of the Ralls Jenet rotted and it is called brown rot.

Prof. Douglass—I am sure I don't know about that, but if you will send me specimens I will tell you. Merely from a statement of that kind it would be impossible to identify any disease. Many things are difficult to identify even with the specimens in your hand and the description in front of you.

Joe A. Burton—It is the same brown rot that destroyed so many of our pears.

Prof. Douglass—Perhaps you have bitter rot and don't know it.

Joe A. Burton—It would take a fellow with a queer taste that would not know bitter rot.

Prof. Douglass—There is another man in the State that has had a great deal of experience, and he thought he did not have the bitter rot, but I convinced him that he did.

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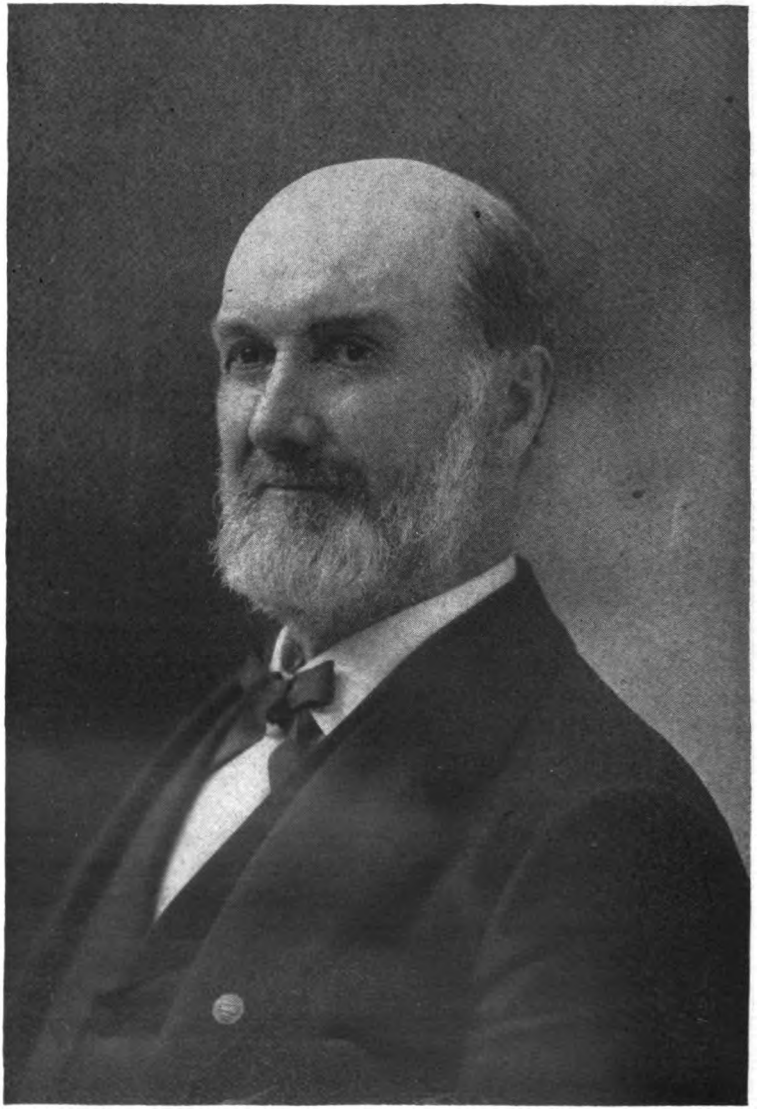

PROFESSOR WILLIAM HENRY RAGAN.

From photo taken in January 1908, and furnished through the courtesy of his daughter, Miss Belle Ragan, Chicago, Ill.

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EXERCISES IN MEMORY OF PROFESSOR WILLIAM H. RAGAN.

After an invocation by Dr. Gobin, of Greencastle, Mr. E. Y. Teas, of Centerville, read the following letter from Professor Ragan, one of the last to come from his pen:

My Dear Friend—I see by the Indiana Farmer that the summer meeting of the Indiana Horticultural Society is to be held at Centerville next week. How I wish I could be with you, but this will be impossible as I am now (3 p. m.) just on the eve of leaving home for the hospital, where on tomorrow I am to undergo a serious operation which is to determine the question of life or death. I go gladly, having faith that I am to pull through. In any event, I trust that you are to have a good meeting, and that you may long stand as a sturdy representative of the "Old Guard" who almost a half century since helped start the society on its mission of good.

Give my best regards to all who may be present, and believe me as ever,

Your friend,

W. H. RAGAN.

Secretary Flick read the following verses concerning Mr. Ragan, composed during a serious illness of Mr. Ragan's about fourteen years ago by his cousin, Dr. J. N. Matthews, of Mason, Effingham County, Illinois:

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William Henry Ragan.

(Written December 3, 1895.)

A name not quite so rhythmic and poetical, perchance,
As some that glitter on the page of fable and romance,
And yet upon my memory it sheds as fair a light
As that of any mythic prince, or mediaeval knight,
Whose chiefest glory, haply, was the sacking of a town,
The pillage of a province or the stealing of a crown.

No gilded armor flashes on the hero that I sing,
No deeds of doubtful honor upon his record cling,—
No legend of a selfish act is coupled with his name,
No trumpeter has gone before, his virtues to proclaim;
He walks the world—my hero—with a dignifying grace
That speaks in every action and is felt in every place.

A citizen as modest as a girl,—and yet a man,
With the spirit of a scientist to travel in the van,
And lead the peaceful brotherhood, whose holy mission seems
To make the earth as rosy as the garden of our dreams,—
To sow the world with beauty, and to chronicle in flowers
The inspirations hidden in this busy life of ours.

From the orchard lands of boyhood to the crimson slope of death,
He went—my quiet hero—when the bravest held his breath;
He rode away to battle with the same unselfish zeal
That found its best expression in the level lines of steel,
When the canopy of heaven had been robbed of every star
By the smoke of carnage rolling from the furnaces of war.

Yet never man of blood is he—but rather one in whom
The gentler virtues germinate—the milder manners bloom—
A soul attuned to sympathy—a heart made kind to bless
The helpless in their weakness, and the lowly in distress;—
A courtier of Nature,—a counselor who feels
The stress of the affliction that his ministration heals.

His name may not be written on the scroll with those who wake
The plaudits of the people, with the rattle-box they shake;—
But in the Book Eternal where the brighter few appear
Of those who loved their fellow-men, and shared their burdens here,
The name of Ragan will be writ in characters of light
Along with that of Galahad, the purest-hearted knight.

James Newton Matthews.

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WILLIAM HENRY RAGAN.

A Sketch of His Life and Character.

Mr. James T. Denny, Greencastle.

William Henry Ragan was born about one mile north of where the village of Fillmore, in Putnam County, Indiana, is now located, on the 29th day of March, 1836.

In 1822, his father, the late Reuben Ragan, obtained the ownership by entry of the lands on which William was born. Mr. Ragan entered upon the improvement of the land—clearing, fencing and building—so as to prepare and establish a home. He early built a hewed log house, which is still standing, being a part of the old homestead that has known an open hospitality for more than four score years. The elder Mr. Ragan, as soon as he had lands cleared and in condition therefor, planted an orchard, and also engaged in the nursery business. He cultivated the finest fruits of the times, and furnished the pioneer farmers of a large section of the surrounding country with young apple and other fruit-bearing trees, which, when coming into bearing, produced the most delicious fruits. Mr. Ragan established a wide and enviable reputation as a fruit grower and nurseryman, and was always assiduous in the encouragement of fruit growing. His great interest in his chosen calling brought him into such prominence among orchardists and others interested in fruit culture that he was one of the leaders in the organization of The Indiana Horticultural Society, and was its first president. A few years after he had purchased the lands for his farm he was married to Miss Jane Matthews, with whom he lived until his decease in 1869. William Henry was the fourth child and eldest son of that union.

We need not dwell on the fact of William Henry's advent into life having occurred during the early period in our State's history, and that, especially in his home neighborhood, conditions had not yet advanced beyond the pioneer stage of development. In fact, during his boyhood days and until his early manhood, the community had not fully emerged from the primitive conditions of the early pioneers. He was sixteen years old when the first railroad in that part of the country, the Terre Haute and Richmond, now the popular "Vandalia Line," was completed. He labored on the farm as all farmers' boys did; he worked the nursery and gathered and marketed fruit, and did everything in the way of service on the farm and in the nursery and orchard that any well-regulated and willing boy would do, without any of the modern luxuries and privileges that more recent conditions have made available. His schooling was all obtained in the "old log schoolhouse," and consisted of instruction and studies in spell-

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ing, reading, writing and arithmetic. With this meager and limited equipment in education obtained in the schools, he was compelled to meet and discharge the duties and obligations of life.

In 1860, he was united in marriage with Miss Emma Fuller, with whom he lived as his wife until her death, which occurred January 5, 1897. To their union four children were born, two of whom are living—Mrs. Nelson E. Woods, of Amo, Indiana, and Miss Belle Ragan, of Chicago, Illinois.

After his marriage he first located his home in a house on his father's farm. A few years later he purchased a tract of a few acres adjoining Fillmore and removed thither, where he engaged in the nursery and fruit growing business. In 1869 he formed a partnership in fruit culture and trade with John Wineberger, at Indianapolis, and moved to that city, where he remained until 1871, when he removed to Clayton, in Hendricks County, Indiana, and formed a partnership with his cousin, W. A. Ragan, in the nursery business. He continued to reside in Clayton until about the year 1883, when he was called to enter Purdue University in an official capacity in that institution. He remained at Purdue one year, when he was offered the chair of Professor of Practical Horticulture, and also the position of Superintendent of Parks in DePauw University, which positions he accepted. He had disposed of all his property interests at Clayton upon being called to Purdue University, and, when entering on his duties in DePauw University, he purchased property in Greencastle, Indiana, and removed with his family to that place. He continued to reside in Greencastle until his departure for Washington City, about the 20th of April, 1899, to enter upon duties that had been assigned him in the Department of Agriculture. Said duties were supposed by Mr. Ragan to be temporary, but which, if they were, expanded into, or suggested, new services to be rendered by him; so that these services terminated only with the ending of his life. September 10, 1901, he was united in marriage with Mrs. Emily L. Sherwood, in Washington City, with whom he lived happily during the remainder of his life. He died in Washington City on the 5th day of August, 1909, and was buried in the beautiful Arlington Cemetery, near the capital city of our Nation.

Mr. Ragan was one of the founders of the Indiana Horticultural Society, and was for many years the secretary of the Society; he was for a number of years a member of the State Board of Agriculture, and for one year was its president; he was for a time secretary of the Mississippi Valley Horticultural Society; he also served the American Horticultural Society in the same capacity. As secretary of these several organizations, he compiled numerous volumes of their reports, and contributed many able papers on horticultural subjects to their pages. He filled important and

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responsible positions in the departments of horticultural displays in the Centennial Exposition, 1876; the Columbian Exposition, 1893; the New Orleans Cotton Exposition, 1887, and many other expositions and fairs throughout the country. He had a very wide acquaintance with horticulturists and fruit growers, so much so that there was not a prominent person in the profession or business in our country in the last fifty years that he was not personally acquainted with. He was for a number of years a member of the Board of Trustees of Purdue University. He represented the counties of Putnam and Hendricks in the Lower House of the Indiana Legislature in the session of 1875, and also represented the same counties in the State Senate in the sessions of 1877 and 1879. He rendered efficient and valuable services for the city of Greencastle during the several years he was a member of the Common Council of that city. There were doubtless other matters that Mr. Ragan was prominently connected with, other services he rendered, that would be worthy of reference; but this brief summary of his achievements and the interest he served so ably and faithfully, will serve to show that his talents were appreciated and his services recognized as being worthy of commendation.

As we have seen, Mr. Ragan was, except in the most elementary way, without an education obtained in the schools, and yet, notwithstanding this most serious deprivation, he, by the careful study of the manner and matter of the expression of their ideas by the best writers and speakers of our language, and personal practice in the use of language according to the highest tests to be employed, became a ready and facile writer, and one who expressed his thoughts in cogent terms and with a style of diction that is not always obtained, even by those of greater advantages offered by the schools. Added to this language study, he was a studious man along many lines of intellectual investigation and thought—so that withal he was a very intelligent man; therefore a scholarly man.

Mr. Ragan was a man of high moral ideals. As a boy and young man he had no moral foibles of thought or conduct. He never cultivated bad habits; he never sought or encouraged evil associations. He always held himself aloof from contact with or participation in any practices that would in anywise be morally injurious or derogatory to the character of a pure-minded, gentlemanly youth. This purity of character in his youth constituted a sure and substantial foundation for the character of his mature life. Honorable, highminded, gentlemanly in his intercourse with all with whom he came in contact, there never was any danger of William Ragan knowingly or purposely injuring any person by either precept or example, with whom he was associated. It was always a source of deepest pleasure to enjoy his company, engage with him in conversation on worthy subjects,

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and at the close of such periods of association, to separate from him with the realization of having spent a profitable and pleasurable season in his company. He possessed quite a fund of humor, and his natural, unconscious witticisms added a keen zest to the enjoyment of his society. His friendship was so much a part of his moral constitution that it can most properly be considered therewith. It was indeed a great privilege, enjoyed, no doubt, by many, to have as a friend Mr. Ragan. So sincere was his friendship, so close and companionable, so pure his conduct and his life; so free in his conversation and his correspondence from anything, even by suggestion, that was low or groveling, his was a friendship to be prized above price. This character he possessed from his early boyhood to his death. Pardon me for thus speaking out of the fullness of my heart, for I am one who can attest all this, as I know the inmost fiber of his life from his boyhood to his death, and I know he was one of those who constitute the "salt of the earth."

Mr. Ragan was intensely patriotic. He was a loyal lover of our country and her institutions. His intolerance of any sentiment or act that in any degree smacked of disloyalty, or to lightly treat of or encourage acts of disloyalty or the perpetrators of them, was well known, as he often voiced through the press his disapprobation of disloyalty in no uncertain tones. He was a member of the Eleventh Regiment, Indiana Volunteers, and was a prominent member of the Grand Army of the Republic. He was never identified with any church organization; he did believe, however, in the final restoration to holiness and happiness of all mankind. He came of good ancestral stock. As we have seen, his father was a useful citizen, and a man of prominence in his day. His mother was of a good family, the family having produced several representatives of superior mental ability and renown.

Impressed with the sense of our loss in the death of our beloved friend and brother, and his final removal from our associations, we can not but feel that this is not the time for tears nor for expressions of unavailing sorrow, but rather that this is an occasion for thankfulness that we ever knew him and enjoyed and profited by his companionship; and that in his active and useful life he accomplished so much of lasting good to humanity. Truthfully it can be said of William Henry Ragan, "His works do follow him," to the blessing of his fellowmen.

WILLIAM HENRY RAGAN.

Dr. Hillary A. Gobin, Vice-President DePauw University, Greencastle, Ind.

Every useful citizen is entitled to the respect and esteem of his fellowmen. When he has completed his life-work his associates should willingly

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pay tribute to his memory. I count it a privilege to consider the many fine qualities of my friend and neighbor, William Henry Ragan. I leave to others the commendation of his work in his official positions. I wish to speak of him as an educator.

In the year 1884, when the Indiana Asbury University was reorganized and enlarged by the munificent gifts of the late Washington C. DePauw, it was decided to open a department of horticulture. Mr. Ragan was solicited to take charge of the same. I use the word "solicited" advisedly; he was not a candidate for the position. He modestly insisted that as he had not enjoyed a collegiate education it was not fitting that he should become a member of a college faculty. But the promoters of the new department, chief among whom was the late John Clark Ridpath, who was a most devoted friend and admirer of Mr. Ragan, overcame his objections, and he was elected Professor of Practical Horticulture and Superintendent of Parks. The second part of his title was justified by the purpose of Mr. DePauw to change the University site to a larger campus. With this object in view, a tract of one hundred and twenty acres of land adjoining the city of Greencastle, and known as "the Durham Farm," was purchased. Mr. DePauw desired that the approaches, drives, walks, and adornments of these grounds should be of the most modern and tasteful design. To direct this pleasing enterprise was far more attractive to Mr. Ragan than the prospect of giving formal lectures to students in horticulture. This is not the occasion to recount the reasons why this change of site and the intended improvements were not carried out. The chief obstacle was the consideration that the buildings on the old campus were too valuable to be thrown away. But, as the years go by, the younger generations of DePauw alumni regret more and more that this noble purpose of the University's chief benefactor was never accomplished. Had it been, I am sure that today we would have had in our town of Greencastle a handsome memorial in landscape architecture for our departed friend.

Just how much formal teaching Mr. Ragan gave I am not able to state. For years he was known in Greencastle as "Professor Ragan." He was the recognized authority in all questions pertaining to plant life, especially respecting trees and fruits. While it is generally understood that books are the best sources of knowledge, still, the living teacher has the advantage in better adjustment to the learner. If he has a kind heart and an accommodating spirit, he makes the truth more winsome and profitable. Professor Ragan was accessible at all times and to all inquirers. His students were not the comparatively few who had matriculated in the Department of Horticulture. His talks on the lawn, or under the trees, or on the sidewalk, were the free treasure of both the venerable citizens who knew much

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by their own informal experiments and observation, but were eager to get more from one whom they knew to be possessed of many of the secrets of nature, as well as the curious youth and children, also, whose minds were just opening to the wonders and benefits of plant physiology. He would not relish the designation of these talks as lectures, yet when considering the information given and its ready use in beneficent activities, the term would not be misplaced. I remember an incident which illustrates his wide acquaintance with tree varieties: We chanced to meet in an old estate in Greencastle, known as "Rosa Bower," the rather rosy title given to it by its founder, Dr. William C. Larrabee, who became Professor of Mathematics in old Asbury in 1840. Dr. Larrabee, who, by the way, was the first superintendent of public instruction in Indiana, and was honored by a re-election, was an enthusiast in tree culture. He delighted in the transplanting of species from distant regions. He had some varieties from his native State of Maine. He had some from the far South. Among the latter was a rubber tree which grew in the open and attained considerable size. In our ramble through these grounds we came upon this tree, or rather a second growth which had taken the place of the original. I well remember the earnestness with which Mr. Ragan commended this tree. He named the many varieties of the rubber and gave some interesting particulars which made this specimen rare and valuable. I do not recall one of the botanical terms he used in its classification, but I do remember vividly his zeal and animation as he described it.

Mr. Ragan was an educator in the fullness of his information upon the subjects to which he gave his lifelong attention. He was a close and discriminating reader. He cared little for the literature of fiction, but he rejoiced in the books and papers which opened up to him new facts concerning the origin of species, the arts of propagation, improvement and multiplication of the plants most useful to mankind. As an experimenter he was painstaking and cautious. Never too hasty in claiming a new discovery, but always ready to make known new information for the benefit of his neighbors and acquaintances. He was never known to exploit a new variety of fruit or flower for a mercenary advantage, but freely gave his choicest conclusions for the enrichment of others. He rejoiced in the free trade of ideas, and was ready to listen to the suggestions of others as to offer his own. In this age, when it is so much the fashion for every discoverer or inventor to hide his achievement until he can rush to the patent office and secure his claim and then blow his trumpet in the advertising columns of papers and magazines, it is pleasing to note the open, frank, and neighborly spirit with which Mr. Ragan gave his best thoughts for the immediate use of those around him. This spirit and procedure made him an educator in the best sense of the word.

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He was an educator also in the quality of his writings. He was rather timid about appearing in print. As many of his compeers had the advantage of him apparently in a more extensive training in the schools, he was very distrustful of his own ability as a writer. But as a literary style, like spoken language, is determined more by a genuine and earnest spirit than by formal training, so as a writer he was clear, chaste, and forcible. His diction was better than he supposed. His reports and reviews were models of simplicity and beauty of style. I remember reading his report of the proceedings of the National Horticultural Society the year it met in California, and for literary conciseness, directness, and finish, it could not be excelled. It paid to read it for its good English, as well as for its information. His bulletins from the Pomological Division of the Agricultural Department are of the same high order. His writings, his addresses, his conversation, his actions, and deportment everywhere were the outgoings of an honest, candid soul. He had a good purpose in everything he said and did. He never acted a part, but he always did his duty. Every life brought under the influence of his life was made more intelligent, more conscientious and more useful.

In a recent magazine article, Mr. Liberty H. Bailey says: "No man appreciates the marvelous fecundity of the earth. The extent and variety of the stuffs which grow out of it every year surpasses all imagination. The utilization of the powers of the earth depends upon the man who raises the crops. The farmer feeds the world." This is a great claim, but who feeds the farmer? Not in the sense of mere physical nourishment; in this respect he feeds himself. But who feeds his mind with the ideas and suggestions which give him greater success in providing for the world's sustenance? The men who as students, thinkers, experimenters, writers and teachers, are giving better ideas to the farmers, using the term in its fullest meaning, including foresters, gardeners, stockmen, and fruiterers, are world-wide benefactors. It is a glorious service. We are coming to a time when we will not weave our brightest laurels for warriors and chieftains in the realm of destruction, but we will give our highest honors to the captains of industry—the industry which constructs and feeds, ennobles and adorns. I am proud of the tribute given to Luther Burbank, the great American agricultural philanthropist, by Hugo De Vries, the distinguished Dutch botanist, who wrote: "The flowers and fruits of California are less wonderful than the flowers and fruits which Mr. Burbank has made." This is not an extravagant eulogy for the originator of the Shasta daisy, the pitless plum, the thornless blackberry, the pomato, and the paradoxical creation called "the *white* blackberry." In the Independent of May 4, 1905, Mrs. Emma Burbank Beeson, in describing the achievements of her illustrious brother, says: "Varieties of fruit have been produced that are more prolific and

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hardier growing in regions where the old varieties failed; the fruit season has been prolonged several months by early and late-bearing varieties, keeping qualities have been developed so as to stand long-distance shipment; many years of costly waiting have been saved the fruit-grower by precocity of trees; fruits have been made larger, stones removed, thorns eliminated, shells made thinner, flavor, color and odor improved, and entirely new fruits produced. Grain and fodder plants have been made larger, more prolific, more nutritive, and to have less waste; cotton, rice and sugar-cane have been improved. To flowers have been added beauty, grace, perfume, size and color." Now this would seem to be the extravagant eulogy of an affectionate sister if it were not easy to sustain every specification in this list of achievements by examples which have been tested, named, and catalogued. I am sure you will not regard this allusion to Luther Burbank as a digression from my subject. When we pay tribute to the memory of a brave and faithful soldier it is never a digression to refer to his relations to a great commander like Grant or Sherman or Howard. Without the valor of a soldiery the strategy of generalship would be in vain. We do not intimate that Mr. Ragan was an obscure private, lost, as it were, in the great army of farmers and horticulturists. While not so eminent as Jared Eliot, Marshall P. Wilder, Charles Downing, Orange Judd, and Peter Henderson, still I am stating his rank very modestly when I say that he was a captain, a teacher, and a leader in the same great industry adorned by these noble minds.

I leave to others to describe the services of Mr. Ragan to the science and art of horticulture in his work in the office of nomenclature in Pomology. I know so little about the full requirements for this position that it may seem out of place for me to affirm his fitness for it. But if it needs an expert, thoroughly informed in all varieties of fruits and their history, and at the same time utterly free from partiality or prejudice, he was certainly a choice man for the position. It has been said, rather disdainfully: "What's in a name?" There are occasions when a name means victory and fortune. There are also occasions when a name may mean the detection of an attempt at fraud or imposition. In the contentions about varieties and in the perplexities about species and sports, a competent referee is more than a peace-maker; he is the agent of truth and the promoter of righteousness. It has been well said, "The ethical element is present in all human activities." This is particularly true in all the activities pertaining to the health and happiness of the people. What a blessing it would be to the wage-workers in all countries, and their families, if fresh vegetables and sound fruits could be obtained in satisfying abundance. Not only would physical health be improved, but the intellectual and moral

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life would be vastly benefited. I have no ill-will against the butcher, but it is said that only one-tenth of the world's population has a flesh diet, but this one-tenth has nine-tenths of the diseases which afflict mankind. This may be an overstatement, but there is enough truth in it to justify the claim that there are no inventions and discoveries which bring greater blessings to all varieties of people than those which result in improving the quality and increasing the abundance of vegetable and fruit supplies. The official who directs in the nomenclature of these products of the garden, the field and the orchard, is the chief adviser of the true discoverer and the honest promoter. In this position Mr. Ragan was an educator to men of high intelligence and great economic importance.

In all educational circles we hear much of the personality of the teacher. During this month in every capital city, and notably in our own, there will be large conventions of educators, and this great idea will be emphasized in every address, that more than any instruction given in formal lessons is the light and incentive and encouragement that go forth from the life of the superior teacher. It was so in the career of Mr. Ragan. He was wise and useful in all that he wrote. His addresses and lectures were faithful in counsel and beautiful in expression. His administration of his office was conscientious and efficient. But above all these excellencies, great as they are, was the noble man, the valuable citizen, the loyal husband, the affectionate father. He fulfilled the type of manhood described in the terms of his own calling by the chief poet of ancient Israel: "He shall be like a tree planted by the rivers of water which bringeth forth his fruit in his season. His leaf also shall not wither, and whatsoever he doeth shall prosper." We who have learned and enjoyed so much from his labor may learn and enjoy still more from his life.

PROFESSOR WILLIAM H. RAGAN.

G. B. Brackett, in charge of Pomological Investigations, Bureau of Plant Industry, U. S. Dept. Agriculture, Washington, D. C.

Prof. W. H. Ragan, Assistant Pomologist and Expert in Nomenclature, Bureau of Plant Industry, Department of Agriculture, passed away at the Homeopathic Hospital in this city, Friday, August 6th, at 4 p. m. He was a prominent figure in American Pomology, and has for a number of years held an important position in the government service. He has written many volumes on pomological subjects and his reputation is world wide. He was Secretary of the Indiana Horticultural Society for nearly forty years; he was superintendent of Pomology at the Cotton Centennial at New Orleans in 1884-5, and held the position of Secretary to the Mississippi Valley Horticultural Society for some years, and was Secretary of the Committee of

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Awards in the Department of Horticulture at the Exposition in Chicago, 1892. For many years he has been Chairman of the Revision of the Catalogue of Fruits for the American Pomological Society, and has been a life-long member of that Society, doing much for the cause of fruit growing throughout the country, especially pioneer work in the States beyond the Mississippi river. He was born in Putnam County, Indiana, in 1836, and was the son of the late Reuben Ragan, a well-known pioneer pomologist of that State. He is survived by his wife, Mrs. Emily Sherwood Lee Ragan of this city, and his two daughters, Mrs. N. E. Woods, Clayton, Indiana, and Miss Belle Ragan, of Chicago, Illinois.

Mr. Ragan was Secretary of the Indiana State Board of Agriculture for ten years, and was later President of that Board. He was a trustee of Purdue University for some years, and served one term in each branch of the Indiana State Legislature, and though in no sense a politician, he did this at the unanimous demand of his constituents.

He was a man of sterling worth, ready wit, keen insight, and his versatility on pomological subjects has rarely been equalled. His death is an irreparable loss to the cause of Pomology the world over.

Mr. Ragan was cousin of the late John Clark Ridpath, the well-known historian.

W. H. RAGAN—AN APPRECIATION.

The following letter from Charles W. Garfield, of Grand Rapids, Michigan, was read by Professor Troop:

It is a privilege to add my increment to the memorial service in remembrance of Hon. W. H. Ragan. Our acquaintance began during the years when I first adopted horticulture as an occupation, soon after I had slipped from the realm of boyhood into the responsibilities of the man. He was then a mature man, a leader in the councils of your Society, and I was a lay member of the younger set in the Michigan Pomological Society. A few years later, when I became Secretary of the Michigan Horticultural Society, and he held a like position in your organization, he was to me a constant source of help and inspiration. I was allowed to draw upon his storage of experience at will, because of his innate graciousness and his desire to be helpful to any one in need. I was made welcome to share the best of his varied possessions of mind and heart. Later we often met on common ground in passing upon the comparative values of fruits at State and national exhibits, and awarding the premiums.

We were intimately associated in the department of awards at the World's Columbian Fair. Indeed it was because of our close friendship

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that I was called into this service, and for several months we worked together in a most companionable and interesting manner.

Since that experience we have met only casually at the Department in Washington, or at meetings of the American Pomological Society, but we have maintained a constant and very regular correspondence until he quietly slipped into "the other room."

As I bring before my mind successively the men with whom I have been associated during an active career of forty years, and average their abilities and usefulness, it occurs to me at once that Mr. Ragan was a marked man, with strong individual characteristics, which rendered his activities into accomplishments of unusual value.

In matters of agriculture he had equipped himself, largely through his alert observations, for leadership. He saw things accurately and was one of the few men in our country who seemed to have an intuition in identifying varieties of fruits. He belonged to a class of men distinguished for their great qualities in the field of horticulture, among whom I recall at once the names of Charles Downing, Prosper J. Berchmaus, Robert Manning, Patrick Barry, John J. Thomas, G. B. Bradstreet and John A. Warder.

He did not stop with the acquirement of valuable knowledge in the realm of horticulture. He had an unusual faculty of imparting it to others. His influence was not so great upon the platform, however, as in conversation, where views are exchanged rather than proclaimed.

He was a man who made friends everywhere, although he held and maintained decided views upon most of the questions of the day, and never hesitated to announce his position in a proper and respectful, but a positive manner. I was particularly drawn to him because he entertained many common ideas upon ethical and religious matters. He was a man who believed in putting religious views in active service in a business career. He did not carry his religion on his sleeve nor as a chip on his shoulder, but it was so intrinsically a part of the man that it protruded through all his activities and was the fibre of his being.

Many times I have literally sat at his feet as he discoursed in eloquent conversation upon the great principles proclaimed in the sermon on the Mount.

Among other attributes of his character which I greatly admired was his sense of humor which often softened a heated argument and deflected a blow of dogmatic philosophy.

Mr. Ragan was a companionable man and always wore well on a long journey. He stood the supreme test of close and intimate companionship.

I am glad to have known him so intimately and the remembrance of his charming personality will go with me while memory lasts. While glows

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the vital flame, I shall cherish the thought of his lovable qualities, and I shall ever be grateful for his influence in shaping my own life purposes and maintaining an optimism, the roots of which are buried in the virtues of catholicity.

PROF. TROOP.

In this connection I can not refrain from adding just a word on my own account. It is now a little more than twenty-five years since I first became acquainted with Mr. Ragan. He was at that time in charge of the campus at Purdue, and incidentally let me say that there are many evidences of his skill and handiwork still remaining on the University grounds.

There are some people whom to see we love. Mr. Ragan was one of those. Our friendship during the short time that he remained at Purdue after I came there, continued unbroken until (as Mr. Garfield said) "he passed into the other room." After he had served this Society as its Secretary for many years, his health began to fail, and he felt that it would be impossible for him to continue the work longer. He then wrote me, asking me to relieve him of the burden for the remainder of the year, which I gladly did. Soon after this, however, his health began to improve somewhat and he was called to Washington, where he continued to do most excellent work for the cause of horticulture in general, and for the Division of Pomology in particular. There are very few men in the United States today who possess that training and those peculiar qualities of mind which would fit them to take up the tedious, painstaking work which was a delight to Mr. Ragan, and which he performed so well.

I feel that each of the older members of the Society, at least, can say with me that, not only has this Society, and the cause of horticulture in general suffered a severe loss in the death of Mr. Ragan, but that each of us has lost a warm-hearted personal friend.

MR. HOBBS.

I am glad of this opportunity to say a few words in commemoration and honor of my good friend, W. H. Ragan.

I came to Central Indiana in 1875. In December of that year, at Terre Haute, I attended my first State horticultural meeting. Mr. Ragan was Secretary of the Society, and if I remember correctly, this was our first acquaintance.

Being a young man interested in horticulture and a stranger, Mr. Ragan took me by the arm and introduced me to Dr. Warder, then the most distinguished horticulturist in the West; to Parker Earle of Illinois, and to members of the Society. Mr. Ragan was a born horticulturist, thoroughly and always interested in the subject. He was pleased to find young men

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who were interested in his favorite subject, and did all he could to interest and encourage them.

Mr. Ragan was a careful and accurate observer, and had acquired a vast amount of first-hand information on horticultural subjects. At the time of his death he was the best authority on varieties of fruits in this country. He had a remarkable memory, seeming never to forget anything he saw or heard. His life practically covered the period of horticulture in the West, and he was the best authority on the horticultural history of the West of any person living.

He was one among the first members of this Society, and did more in his day to promote its interests and the horticultural interests of the State than any other person. He was too much devoted to his calling to make money; his time and energies were given with little or no compensation to the promotion of horticultural interests.

He was a warm and faithful friend, always deferential and polite. He had a keen appreciation of the mysteries and the beauties of nature, and delighted to point them out to others. He was absolutely honest. I remember he gave up a good paying position in the Horticultural Department at the Chicago World's Fair and came home because he could not conscientiously do some things that the position required of him.

He was a man of high ideals and splendid character. In his death many of us have lost a sincere and valuable friend, and the State and country at large have lost a patient, conscientious and earnest worker in the field of horticulture.

Mr. Joe A. Burton.

Mr. President, I had no memory of Prof. Ragan having been a soldier. I have seen them sitting on the corner, waiting for their pension so that they could live on it, and you, perhaps, like myself, have felt a little disgust for these men, those with considerable physical ability, at least, and I had forgotten that Mr. Ragan was a soldier. He never acted that way. I would have remembered it if he had sat upon the corner with his brass buttons on, but he did something, and made a record after he was mustered out, and as he became feebler and feebler, he worked more and more, and his last work was his greatest work. We have nothing in horticulture that can equal in importance his work of classifying and naming fruits. This is wonderful, and he kept his life and spirit in his work, and what he did was along the line of his chosen profession. Sometimes I am beset by friends to quit being so active and settle down in the world, and, like Mr. Ragan, I enjoy that good time in doing something, and I hope that I finally may die as he did—die in the harness.

(Applause.)

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Mr. Custer.

Mr. President—I cannot allow this opportunity to pass without offering my humble tribute to the memory of our friend, W. H. Ragan. It was my good fortune to have formed his acquaintance many years ago. I believe that it was at the meeting of the Society in January, 1872, that I first became acquainted with Mr. Ragan, since which time we have been intimate friends. For five years we were associated together as members of the Indiana State Board of Agriculture. I can testify that he was the soul of honor. With melting kindness he treated all. To fortune's favorites he rendered all that was due, and equally his heart went out to those in the humbler walk of life. During a long and useful life he strove in the front rank among our best and most worthy horticulturists.

Mr. Grossman.

I must say something in memory of our dear friend, W. H. Ragan. I first met him personally in August, 1895, when I attended a meeting at South Bend, and one night I took the train at ten o'clock and Prof. Ragan suspected that I was going to the meeting, and found out who I was. As Mr. Hobbs has said, he introduced me to everyone who was going to that meeting, and since that time has been a close, personal friend of mine. From him I have got very much inspiration in the horticultural work, both from his advice here in the meetings, and from his personal letters. He has been very dear to me, and since I have been married he has paid considerable attention to me and my wife, and both she and myself wish to offer this humble tribute to the memory of our dear friend, W. H. Ragan.

Mr. DeVilbiss.

About three or four years ago it was my privilege to meet W. H. Ragan. He had a character distinctly his own, and when you took hold of his hand he drew you to him. He was wrapped in the solitude of his own originality, always making you feel at home whenever you met him. When I met W. H. Ragan and returned home I told my wife that I had met a character that was sublime above all others that I met. Last winter when I attended this Society again, I knew that it would not be long until we would lose our dear friend, W. H. Ragan, and my sad suspicion was true.

Mr. Teas.

Mr. Ragan and I were associated very closely in the concerns of this Society for more than forty years, and I can agree with what has been said.

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MR. LINDLEY.

I indeed have very pleasant memories of W. H. Ragan. It was my good pleasure to meet him in DePauw University in 1885. He was an instructor there and I was a pupil under him, and most of the interest that I take today is due to Prof. Ragan, and I indeed feel that in his death I have lost one of my dearest friends in the horticultural field. I had a letter from him just about a week before he passed away, and in this letter he said that he was rather fearful that he would not stand the operation.

MR. KINGSBURY.

All of the older members of this Society would like to pay tribute to our dear horticultural friend, and those who have spoken and those who have read papers have expressed all that I would desire to say, and if I would attempt to say anything it would simply be a repetition of what has been said. There is just one point I would like to emphasize, and that is the one suggested in the letter of Mr. Garfield. Mr. Ragan's innate graciousness seems to describe the man as well as anything could. He was a born gentleman. He was a horticulturist—not for money, but for the sake of the art itself. He was full of love for the subject, and if there had been nothing in it in a pecuniary way at all, he would still have been as devoted a horticulturist as ever. He was authority and a friend to those who were starting out in the business. Everyone loved him who knew him, and the better he was known the better he was loved.

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CANTALOUP CULTURE.

G. C. Borcherding, Seymour, Ind.

Mr. Chairman, and Members of Indiana Horticultural Society—It is unnecessary for me to apologize for myself as a speaker for reasons that will soon become apparent to you all. However, I can tell you in a few words my methods of cultivating the growing melons. I have been growing melons for a number of years, and experimenting with different methods of culture, fertilizers and the protection of the plants, and I desire to express my opinions gained from my own experiences as pertaining to the following special subjects:

1. The kind of ground to select, when to plow and how to fertilize.
2. When to plant and how to protect plants.
3. How to cultivate.

I have discovered that the most essential thing in the culture of melons is to have the proper ground, and in order to meet this requirement, I have adopted the three-year rotation theory, as follows: From clover to melons, melons to wheat, wheat to clover, clover to melons.

After the melon crop has been removed disk the ground and sow to wheat. Sow clover on the wheat the following spring. Cut or pasture the clover the following year, then plant again in melons.

You now have exactly what the delicate plant life requires: a melon seed bed full of nitrogen that will cause the plants to grow very rapidly and enable them to overcome the bugs and diseases they are sure to have to battle against.

In early spring I plow deep—about eight inches—using a jointer to make sure that I get all of the sod well turned under. I have never taken to the plan of thoroughly working the ground before planting, for the reason that I have always been able to pack the ground thoroughly by constant cultivation after the plants are up and growing.

About the third week in April I harrow the ground, mark it one way twelve feet for watermelons and furrow out with a large shovel nine feet the other way. For cantaloups I plant 54 inches each way, and prefer to furrow out both ways, as you will lose your mark if not made reasonably deep. For watermelons I then take a shovelful of well pulverized manure, and for cantaloups one-half a shovelful. Work this in each crossing, bringing your hill to a level with the top of the ground, not above.

About the first of May, if the weather is warm, and conditions for rapid germination of seed generally favorable, I plant from seven to twelve seeds in each hill. If plenty of moisture, cover very lightly, just so the seed is in moist ground. If weather conditions are right, the seed should be up in from five to eight days.

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As to protecting the plants, I shall speak a few words to those who, like myself, are unfortunate and unable to get rid of the melon bug by liming, putting on tobacco dust, sulphur, and the innumerable insect destroyers that are on the market. I have tested them all with the result, apparently, of stimulating the appetite of the bug.

Therefore, I say to those who are looking for a remedy, I have with me a sample of a dome screen which I have been using for three years. This dome is a success. It is placed over the hill when the seed is planted and serves the following purposes: Protecting the seed from the field mice, protecting the plant from the bugs; protecting the plant from frost; protecting the plant from birds; protecting the plant from hail. The cost of this appliance is a little high for the first year, but when we consider that they will last ten years or more, I think they will appeal to you as being cheap. You can carry five hundred at one time if necessary, and they should be dipped into a thin paint every two years and stored in a dry place as soon as the plants are crowding under.

The cultivation of the melons is most important. As soon as the plants get the third leaf, I prefer to thin down to two plants, working the hill carefully. I then place the dome over the hill again. You may now start the plow to destroy the weeds between the hills. I always want to plow very deep while the plants are small, to prepare the ground for the feeder roots which will soon make their appearance. I take the cultivator, and by using large shovels on the outside, or the addition of an extra shovel, you can cultivate all of the space between the hills planted to cantaloups at one trip to the row. Two trips the nine-foot way for watermelons, and three trips the twelve-foot way. I take the dome off a few days later and run a small shovel close to the plants, using larger ones for the space between the hills. I prefer to plow both ways, which puts the plants in fine condition and requires but little work with the hoe. I plow the same way a few days later.

The time to prepare for the vine is now at hand. Immediately after the third plowing, I plant for watermelons, a "catch crop," as I call it, and prefer to use navy beans. Following the row in which the hills are twelve feet apart, I plant a hill of beans four feet on each side of the melon hill. They will come up just in time for a thorough plowing, following the rows in which the hills are nine feet apart, plowing a row of melons and then a row of beans, and so on. This gives clean ground for the vine to run on and mellow beds for the feeders to run through. The vines are now reaching for something to catch to keep the wind from tossing them about, and will soon find the bean hill, or should be laid in that direction. They will anchor to it, and the plowing must be one way from now on.

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I now discard my shovels, take a one-horse plow, get a set of sweeps twelve inches for cantaloups, and one twelve-inch for center, and one eighteen-inch on each side for watermelons. The plow has a depth regulator, enabling me to run the sweeps about one inch deep. The outside sweep will run partly under the vines and shove them to their place. As soon as the vines meet I cut off the ends. I keep the sweeps running, bearing away from the row a little each time. The side vines will soon confine the plowing to one time through the row. I have plowed watermelons in this way when melons were getting ripe in the field. You will observe that I am not interfering with the feeders, as they are running through the ground as fast as the vine is spreading above it, and I am also furnishing a dust mulch to retain moisture which is usually very essential at this time of the year. I also avoid the expensive labor of laying the vines for the last plowing, which most growers do, which usually causes all of the little melons to fall off and checks the growth of the vine for a few days, and if dry will permanently injure it. If the beans are ripe they may be gathered, as they have served their purpose.

I do not plant a "catch crop" for cantaloups, as they are usually kept in shape by the sweeps.

From six acres of Monte Christo watermelons, I shipped four carloads this year, and saved five hundred pounds of seed, which, I believe, clearly demonstrates the value of this method.

DISCUSSION.

A Member—How much do your dome caps cost?

Mr. Borcherding—About four dollars per hundred. I think this is a little high, but that was the best I could do.

A Member—Is that cap high enough for the watermelon?

Mr. Borcherding—Whenever a plant is large enough so that it cannot get under this dome, I remove it, for the plant is then large enough to take care of itself.

Mr. Pierce—What size is it?

Mr. Borcherding—Six inches across.

Mr. Beaver—I would like to ask in regard to the fertilizer. Do you mix it in or just cover with it?

Mr. Borcherding—I mix it.

Chairman Reed—Is this dome made of galvanized iron?

Mr. Borcherding—No, it is just common screen wire, dipped in white paint for a purpose. When you are planting you have experienced how

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hard it is to keep in the row if you haven't a good stand, and the first thing you know your row is out of shape, and when this has been dipped in white paint you can see your rows clearly throughout the field.

Mr. Custer—Wouldn't that reduce the size of the mesh to the size you desired it?

Mr. Borcherding—Well, yes, it does do that, and I think constant dipping will reduce it sufficiently for us. In fact I haven't had any damage worth speaking of under this twelve-inch mesh.

Mr. DeVilbiss—Do you have winds sufficiently strong to land those in the fence corners?

Mr. Borcherding—No, sir, I have had winds sufficiently strong but that was not what happened. Professor Woodbury was there at the time, and the wind drifted the sand to the side, but there has never been enough wind to move the dome.

Mr. Pierce—Why don't you use the two-horse cultivator?

Mr. Borcherding—That will not take out the middles, for it is not wide enough, and I find that you have to work your team pretty close together.

Mr. Milhous—How deep do you cultivate the soil right around the plant?

Mr. Borcherding—Not very deep to start in on.

Mr. DeVilbiss—Do you plant watermelons in hotbeds?

Mr. Borcherding—No, I plant the bulk of my melons in the field.

Mr. DeVilbiss—At what time?

Mr. Borcherding—The first of May if the weather is right.

Mr. Conger—Where do you buy these caps?

Mr. Borcherding—They are made by a special factory. I get them of our local dealer. I think they ought to be manufactured for less money than four cents, but that is the best I can get them for, and I don't get along without them.

Mr. Henry—We are not interested in melon growing because we do not have suitable soil for growing melons. We are not in the melon business, but we are growing other things, such as cucumbers and the pumpkin, and we are bothered with the cut worm, and I would like to know how we can get rid of these pests.

Mr. Borcherding—I think that is off my subject a little, but the experiment station is doing all it can to overcome these worms and other such

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things, and it would be better to ask them. I have had some trouble like this myself, but very little as compared with the trouble they give others.

Mr. Garretson—I would like to ask you about the wiit.

Mr. Borcherding—I will have to refer you to the experiment station on the wilt. I have had it and had it bad.

Mr. Garretson—How did you overcome it?

Mr. Borcherding—I didn't overcome it.

Prof. Woodbury—I don't think I can give very much light on the subject. I may say that this wilt is a bacterial disease, and at the present time I must confess that we are not controlling it very satisfactorily. We know that it goes from plant to plant, and we also know that when the plants are protected from the beetles they are not nearly so subject to the wilt, and that brings us back to the proposition of the control of the striped beetle, and in some cases that is pretty hard to do. This dome certainly protects the plants when they are small.

Mr. DeVilbiss—Have you ever tried any coal oil and ashes?

Mr. Borcherding—I have tried everything mentioned.

Mr. DeVilbiss—I have been successful in one way or another.

Mr. Burton—I would like to say in regard to the coal oil that I soaked cobs in coal oil and made a pen of them, and the bugs would go up on the plants and eat and crawl under the cobs for protection from the sun.

Mr. Garretson—Do you get the vines out of the way when they wilt?

Mr. Borcherding—I don't believe that does any good. We have been depending upon our experiment station to help us out, and we are working together, and I feel confident that everything will come out all right.

A Member—Have you ever tried moth balls? Two or three people have told me that this is a very effective remedy.

Mr. Borcherding—They seem to thrive on them.

Mr. Milhous—Is it necessary to have sandy soil?

Mr. Borcherding—For cantaloups I don't think so; I have seen fine ones raised on heavy loams; but for watermelons I do think it very essential to have a sandy soil to raise good, sweet watermelons.

Mr. Kingsbury—Is there anything better than the Rocky Ford?

Mr. Borcherding—Our melon has quite a reputation, but when it comes to the cantaloup we are not growing very much in the basket melon, but are shipping to the Eastern market where we can bulk the cantaloups in carloads. We can get them into the market in a day and a night. The variety we raise most is the Tiptop.

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Mr. Pierce—They spoil pretty quickly after the commission men get them into the baskets, for I have competed against that kind of goods.

Mr. Borcherding—Yes, they are not of as high a grade as if they were left on the vines, and perhaps, too, they are bruised more or less, but we have always got good results.

Mr. Pierce—What do they net you per acre?

Mr. Borcherding—That varies. We were making this last season from one hundred and twenty dollars down. I believe fourteen hundred hills brought one man $94.

Joe A. Burton—How do you tell when the Tiptop is ripe?

Mr. Borcherding—It is easy enough to tell when they are ripe. They begin to turn yellow and crack around the stem. Then is the right time to pull the Tiptop.

Mr. Pierce—How do you tell when they are nearly ripe?

Mr. Borcherding—That is the hard part, especially to get your labor to work right in pulling the melons for the market. To be shipped they must be pulled about three days before they are ripe, and when weather conditions are different they will not always ripen up just alike, and so it is safe to say that you will pull some that ought to have stayed on the vines, and will leave some on the vines that should have been pulled. Green hands will almost ruin your cutting. It is a very particular thing, this cutting for bulk shipment.

Mr. Williams—What kind of manure do you use?

Mr. Borcherding—I use barnyard manure. I prefer cow manure to anything else, and I prefer it well rotted. I throw it into a pile this winter and it goes over until the following spring, and then it is very fine.

A Member—Do you think that is better than fresh?

Mr. Borcherding—If you don't have rain every day fresh manure will burn the plants up. There are times when it would really be better, and other times the results would ruin you.

Mr. Garretson—The cow stable manure will burn them up.

Mr. Borcherding—If there is straw in it.

Secretary Flick—I would like to say that we have waited patiently for Mr. Borcherding, but I believe that we have been well repaid for doing so, for we have received information from him which will be of great value to those who are present, and I think our thanks are due him for his presence here today.

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Mr. Milhous—Before leaving the subject I want to say that it has been explained to me why the citizens of Indianapolis and Indiana say that the musk melons are hardly worth buying because they are pulled off of the vines two or three days before they are ripe. I say pull them when they are ripe. I will not let a man pull a melon for me that has not begun to crack around the stem. When a melon is pulled green it is always green.

Mr. Borcherding—I take exception to that, Mr. President. When we started to grow melons we had quite a trouble to get them ripe, and we went to work and took a melon that was green. I told my neighbor to pick a melon that he thought should be shipped and that I would pick one, and then we picked one that was good and ripe, and we placed all three in a strawstack, and that was a great deal like putting them in a box car, and left them in there for three days. These melons were nice and ready to eat, and we had melons ripe in the field. We looked at this melon every day, and it was not ripe until finally it came around and got yellow, and we cut it and the flavor was good. Anyway, most of the people in the cities do not know what good melons are. It has been very satisfactory with us.

WAYNE COUNTY AS A FRUIT REGION.

E. Y. Teas, Centerville, Ind.

Wayne County was one of the first counties in the State settled by white people, and these early pioneers brought with them from the East and South seeds and scions of the best fruits known in their former homes. Those who settled in the higher lands on the dividing ridges between the numerous streams that flow through the county from the north to the south planted trees that are in some instances still living and bearing fruit, although nearly or quite 100 years old. I have now in mind an orchard about a mile east of Greens Fork that has been bearing more than 80 years. I think about half of the trees originally planted are still living and bearing fine fruit. There never has been the attention given to fruit growing in the county that the merits of the business would justify, but enough to show that good results may be obtained even under ordinary care.

Early in 1800 Silas Wharton removed from New Jersey and established a nursery in Warren County, Ohio, bringing with him the best varieties of apples, pears and cherries known in the East. Soon after Andrew Hampton and Cornelius Ratliff started nurseries in Wayne County, so that the citizens had early opportunity to secure good varieties of fruits.

About 1850 a Mr. White planted 1,000 peach trees in high land just over the Wayne County line in Ohio, and for years had abundant and profitable crops of peaches.

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Some time after this Mr. Shomaker, from New Jersey, planted ten acres in peach trees just south of Richmond. Soon after Benjamin Stratton and George Coale each planted from 10 to 15 acres in peaches about two miles southeast of Richmond. All of these orchards were very successful.

In October, 1862, John J. Thomas of New York, one of the most distinguished of orchardists and of writers on horticultural subjects in America, visited Richmond, and I had the pleasure of driving him out to see the orchards of Messrs. Stratton and Coale. Mr. Thomas said he was familiar with the orchards in New York, New Jersey and Delaware, but he had never seen a finer peach orchard than that of George Coale.

On all the higher lands in the county peach and other fruit trees that are allowed to grow usually bear fairly well.

I believe it is perfectly true that no well-directed effort at fruit raising in suitable localities in Wayne County has ever been other than successful.

Much is said nowadays of the wonderful opportunities for fruit growing in the West, but in my opinion it is the part of wisdom not to overlook the great advantages of Indiana in this line.

I understand very desirable lands for fruit growing within 25 miles of Indianapolis can be purchased at $12 to $20 per acre, a price that should appeal to those thinking of engaging in this industry.

INDIANA PECANS.

MASON J. NIBLACK, Vincennes.

Before entering upon my subject—Indiana Pecans—I wish to state briefly the status of the pecan industry as at present developed in some of the states south of Indiana.

Some twenty-five years ago the importance and possibilities of the pecan as a commercial commodity began to be comprehended by a large number of the people of the Southern States, where that nut was native to the soil. In cases that were few and far between the pecan had been grafted and the grafted trees were found to be bearing abundantly. This fact beoming well known made many ask the question if these few and isolated grafted trees do so well why would not trees planted in large orchards do equally well? The question was answered by the work being taken up and carried out accordingly.

The first work that had to be taken up was the selection of the varieties that would be the most suitable and the most profitable to propagate. I would be more accurate in saying that their first work was in discovering in the product of the wild trees and in developing from the seedling trees

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that they planted the varieties that would be the most suitable and the most profitable to propagate. This was no small piece of work, as anyone who has spent several seasons in trying to find the best wild varieties in any part of the native pecan territory will willingly and cheerfully and perhaps tearfully acknowledge.

As the matter became agitated pecan nurseries sprang up and became quite numerous. So slow were they in discovering approved varieties that these nurseries grew and sold very many thousands of seedling trees. And up to ten years ago ninety-five per cent of the trees sold by the pecan nurseries were seedlings. Some of the seedlings have produced varieties of great merit, and many of them are being budded and grafted in the nurseries. At the present time and for six or seven years back with the wild varieties that have been found worthy of being propagated, and with the best kinds that have been grown from the seedlings that are used for propagation the order is more than reversed, and more than ninety-five per cent of the trees that have been grown and sold by the nurseries have been and are budded and grafted trees of named varieties.

The industry of growing pecan trees in orchard form has grown and is growing very rapidly in those Southern States. Many thousands of trees are being planted each year. Commercial pecan culture is giving promise of becoming one of the most profitable horticultural possibilities and farm possibilities in the South. The pecan growers of the gulf coast states deserve our sincerest congratulations on the wonderful advancement they have made and for the bright outlook that looms up before them. It were to be devoutly wished that we of Indiana were neck and neck with them in all the intricacies of the business.

The success of the Southern pecan growers, and especially the nurserymen, has led them to the conclusion and to the claim that they have a natural monopoly of the industry. They are very fond of saying and very persistent in saying that the pecan will grow only in the gulf coast states. or at most in the cotton belt. This idea I have very strenuously controverted and hope in a few short years to thoroughly disprove in every respect.

Whatever can be said concerning the Indiana pecan will apply equally as well in a general way to Illinois, Missouri, Kentucky, Virginia and possibly several other states.

Indiana, as relates to pecan growing, is now about where the gulf coast states were twenty-five years ago. The pecan in its wild state has been growing very extensively in the river bottoms as a forest tree in a large part of the State for hundreds and perhaps thousands of years. It has been cleared away as other forest trees with little thought that the product of the trees if properly saved would be many times more profitable than the

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land would be when put in corn, wheat or any other general crops. In these last few years a more particular knowledge of the merits of the pecan and a better appreciation of its value as a wholesome and nutritious food have in a large measure stayed the destruction of these trees and brought them to a prominent place before horticulturists, nurserymen, farmers and the whole public.

The conditions in the South twenty-five years ago were not any better than ours are now, nor were they materially different. They had only wild trees, and we have them also in great abundance. I am, however, frank to admit that up to the present time I have not seen an Indiana grown pecan that was as large as some of the varieties that they have discovered or developed. They have some varieties that run about forty to the pound. The best that I have seen of the Indiana pecan would run about fifty-five to the pound, and most of the select and choicest ones run along about sixty to sixty-five to the pound.

Our best pecans today would be considered as medium sized in the South. I think the South is drifting to the medium sized pecan, and I believe the medium sized nut will run a much larger number of pounds to the tree. The largest pecans do not always yield the greatest crops, nor are they always the best nuts.

I think, too, that the Indiana pecan, and especially the Wabash valley pecan, is sweeter, more delicious and more delicate in its flavor than the pecan that grows along the southern border of the frost line. In other words, I believe that the Wabash valley pecan is the finest pecan that grows anywhere.

The fact is established that pecans do grow satisfactorily in Indiana, and the question naturally arises, how can we get into the industry of growing pecans for profit? This question I am about to answer with some satisfaction at least to myself. And my answer is we can do so in two ways. First, by planting budded and grafted trees. Second, by planting seedling trees.

As to the first way there are no facilities at present. I am often asked as to where can budded and grafted pecan trees be purchased. This I am unable to answer, as there are none in any nursery that I know of that can be recommended for planting in Indiana. There will be many of them in a few years, and that is sure, for the demand is so strong for them that much longer resistance will be impossible.

Before the nurseries can produce and sell this kind of a tree it will be necessary to very carefully and intelligently select the best varieties, name them, bud or graft them and get them ready to transplant into orchards. The meaning of the term "best varieties" includes many things. As to the nut it means the best as to size, form and color, the ease by which it is

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cracked and the shell and kernel are separated, the per cent of meat to shell and the quality and beauty of the kernel. As to the tree it means the best as to productiveness and regularity of bearing, uniformity of ripening, precocity, habit, vigor and so on. It will require a whole lot of work for the experimental station and for the nurserymen to bring all this about, but it must be brought about, and it will pay tenfold in every way.

As to budded and grafted nursery stock permit me to say that I prefer that which is root grafted. Young trees are sometimes killed back to the surface of the ground, and when the stocks have been grafted from two to six inches below the crown and the young tree is killed back, the new sprouts that will be pushed up will be of the grafted wood, and the trouble and expense of providing a new tree will be avoided. In case of budded stock or stock grafted above the ground the sprouts sent up, if the tree be killed back, will be seedling, as the tree will be killed below the bud or graft. It sometimes happens that scions grown in cold and northern climates are sent South to be grafted on Southern roots. When these trees are transplanted to the Northern climate the wood appearing above the ground will all be Northern wood, and it is thought they will not kill back. It might and probably would be different if any part of the Southern wood appeared above the ground.

As there are no grafted trees available for Indiana planting at the present time we naturally turn to the seedling tree. But here again we meet with difficulty. I know of no nursery where seedling trees suitable to Indiana planting can be obtained.

We have here an ideal illustration of the all important part that the nurseryman has in artificial tree planting. If the nurseryman fails to take the lead the planting of trees of a particular kind lags behind. While the grower is the mainstay of all horticultural interests, yet he can make little progress without the necessary help of the nurseryman.

I wish I could say something here today that would induce a large number of nurserymen in Indiana to plant Indiana pecans each year for a few years with the idea of first raising seedling trees for sale. After the proper varieties shall have been determined upon it will be quite an easy matter to convert the young seedling trees into grafted or budded trees. I feel sure that with a little judicious advertisement there would be no trouble in disposing of all the trees that any and all nurserymen would feel disposed to grow.

We have one way of growing the pecan which any one could take advantage of at once. We can plant the nuts and grow our own trees. We don't necessarily need the help of the nurseryman in this interesting work. In other words, every one can be his own nurseryman for the time being.

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Planting pecans ought to be delightful work for the young man and the boys and the girls on the farm. There are some points that must be observed in planting this nut. It should be planted about an inch and a half deep. If it is kept in a dry place before planting there is danger of the germ being killed. So the nut ought to be put in the ground in the fall as soon after it matures as convenient so that it will have no chance to dry out.

The ideal way of planting pecans would be to plant the nut in the place where the tree is to remain permanently. But it is inconvenient to look after, protect and cultivate so small a tree, and besides a pecan planted an inch and a half in the ground and lying there all winter and spring makes a noise that is wonderfully charming to a squirrel, a mouse or possibly to a mole, and while you are not looking some such animal might run away with it.

The best and surest way to handle pecans in planting is to straitfy them in the fall or early winter and protect them by wire or some other way against squirrels, mice and other animals. Early in the spring the nuts should be planted in nursery rows and about six inches apart in the row. They should be carefully cultivated, and when they are about three years old they should be taken up and planted in the place where they are to remain permanently.

I have now mentioned the best way to handle the pecan in planting, and I will not take up the time to mention any other ways at this time.

I have no hesitation whatever in planting pecans in any part of Indiana. I believe they will grow as well around Indianapolis, Huntington or South Bend as they would around Vincennes. There is no more beautiful shade tree than the pecan. It ought to be planted along the highways and in the dooryard. When planted in orchards it ought to be in the open field where it can get plenty of air and sunshine.

In planting the pecan I would of course always plant the Indiana grown or Northern grown nuts. I would not plant the Southern nut as I would have grave doubts as to its ability to thrive in our climate.

The pecan tree will grow in almost any kind of soil. It will not grow in soil underlaid with rock or an impenetrable subsoil ten or fifteen feet from the surface. It will not grow in swampy or wet soils. It will probably not grow in sour or worn-out lands. Overflows will not hurt the trees if the land is well drained after the overflows have subsided. All lands where pecan trees are planted should be well drained. It is not at all necessary to plant the trees in alluvial soils. Ninety per cent of the trees that are planted in the South are planted on the highlands far away from the alluvial soils. There are no soils where they have proven to be a failure.

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I presume of course that the richer and better the soils the better it would be for the tree. And yet it is said that the trees come to bearing earlier in the poorer soils.

Now the pecan tree should not be neglected or left to take care of itself. It responds readily to good cultivation, and if the tree is found to be worth planting it ought to be taken good care of. A stunted tree of any kind is of very little value.

Everyone wants to know at what age pecan trees commence to bear. This is a hard question to answer. A man in the county where I live has a pecan grove of sixty-three trees that are now eleven years old. He says that over half of these trees were bearing at eight years of age and that they all bore nuts at ten years of age. This seems to be in accord with what experienced pecan growers report. Pecan trees are said to bear in four or five years from the nursery and in seven or eight years from the seed. This might be a long time to wait, but that man waits longer for his pecans who does not plant pecan trees than the man who does. So I say plant pecan trees and the time of bearing will roll around before one can realize it. The crops get larger every year and the tree endures for several generations. It makes a fine legacy for one to hand down to his children and his grandchildren.

DISCUSSION.

A Member—Does the pecan tree have a taproot?

Mr. Niblack—Yes, sir, more than any other tree that I know of.

Prof. Troop—I presume that a great many here are surprised that we can grow pecans in Indiana. I would like to ask what is the extent of the pecan industry at the present time. Do they have a commercial value?

Mr. Niblack—Yes, sir, they are gathered from the wild trees in southern Indiana along the Wabash river. I understand forty carloads were shipped away a year ago. The crop this year is not as extensive as it was then, but fifteen or twenty carloads were shipped away this year. I feel sure that the pecan tree will grow in any part of Indiana if you will plant the Northern tree.

Mr. Hale—Is the pecan a species of the hickory?

Mr. Niblack—Yes, sir.

Mr. Hale—What do they sell for?

Mr. Niblack—They do not sell by the bushel, but you have to pay fifteen cents a pound.

Mr. Hale—How many pounds in a bushel?

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Mr. Niblack—Some say forty and some forty-four. They sell altogether by the pound.

Mr. Hale—Are they seedlings?

Mr. Niblack—They are all seedlings.

H. H. Swaim—How far north can they be grown in Indiana?

Mr. Niblack—I feel sure they would grow anywhere in Indiana.

Mr. Swaim—I tried English walnut and made a failure of it, but I have never tried the pecan.

Mr. Williams—Will cattle and sheep eat the tree?

Mr. Niblack—I suppose so. I think the tree is less affected by insects or disease than almost any tree that is grown. It has no enemies that have destroyed it; there are some enemies that attack it, but nothing serious up to the present time.

Mr. Hobbs—This paper and some of the facts are a revelation to me. I had no idea that we were shipping forty carloads of pecans out of the State, and I would not have believed it if Mr. Niblack had not told us. I am surprised to know that we have such an industry in the State.

Mr. Niblack—I am sure that I am correct in this. All of these that were sold were of mixed varieties.

Mr. E. Y. Teas—I have had a little experience with the pecan tree. In Irvington when it was laid out there were nearly one hundred pecan trees planted, and now some of them are a foot in diameter, and a great many of them are growing yet, but they have never produced any nuts.

Mr. Niblack—Where were the trees from?

Mr. E. Y. Teas—Southern Indiana.

Mr. Niblack—Of course there is no way to account for that. I know that it is hard to get men to dig up the tree as it should be dug up. I know that it is my experience that they will dig them up just the same as they would another tree. You must have more roots with this tree. Then, too, it is not a fair test to take the trees out of the woods and plant them in the open. I don't want to say anything here that will mislead anyone. I want to make myself perfectly plain. I would advocate that you procure the trees as near where you desire to plant them as possible. I don't think two or three hundred miles is a change in locality, at least it is not enough change to make any difference.

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INDIANA SHOULD GROW HER OWN POTATOES.

S. T. Porter, Peru.

To assert that any particular section should grow a crop unusual to it, if the assertion is to have weight, is to assume the existence of justifiable facts, namely:

1. That natural conditions are favorable.

2. That the successful growing of the special crop may be conditional with as much certainty as that of the usual staples.

3. That this special crop offers profit at least equal to those commonly grown.

4. That the introduction of this special crop widens the range of profitable farm practice, because a potent factor in the conservation and improvement of soil conditions and fertility and an asset of educational value, especially to the younger people on the farm.

In expressing the conviction, therefore, that Indiana should grow her own potatoes, I base the conviction on natural and economic premises. The purpose of this paper is to demonstrate so far as possible the correctness of these premises.

1. *Climate and Soil*—We often hear the remark, "Indiana can not grow potatoes successfully. If you ask why, the usual answer is, "Oh, the climate is unfavorable." What is the matter with the climate? How does it differ from that of Michigan and other potato growing sections? Michigan, for instance, has a little more humidity and considerable less sunlight than Indiana during the growing period of the potato. Humidity has a tonic effect in conserving the vitality of the potato plant, but is a favorable condition for the development of blight or fungous diseases. Sunlight, on the other hand, is necessary to the starch-making process. In other words, tuber growth is most active in the daytime under the stimulus of sunlight, and is practically suspended at night. The great size of the tuber grown under irrigative methods is due to the constancy of the sunlight, making possible a more active production of starch, and, in consequence, a much larger growth of tuber than is possible when a large percentage of cloudy weather prevails. A comparison of climatic conditions, therefore, does not warrant the assumption that Indiana is at a disadvantage as compared with Michigan and other potato growing sections. The fact is that the potato is not at all fastidious, but, on the other hand, has a wider range of climatic adaptation than any other staple.

2. *Soil.*—Any of our Indiana soils can be fitted to produce large yields of potatoes. Sandy soils and sandy loams are naturally best suited to the growing of the crop, but clay loams, and even clay, can by proper handling be made to produce large yields of smooth tubers.

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May potato crops be grown with certainty, etc.?

Every farming section has its characteristic staples—crops that are most certain to succeed, and which experience has demonstrated to be the safest to grow. Hence, any new and untried crop proposition is sure to be met with the challenge, especially by the conservative and well-to-do farmer. Is it as sure to succeed as our regular crops—or is the element of chance such as to make the growing of this crop hazardous? Nor is this unreasonable—the attitude of the man from "Missouri" is always a safe one where the new and the untried crops are proposed.

While the potato is somewhat exacting in its demands in the way of soil conditions, tillage, protection from insect and fungous enemies, etc., it is nevertheless true that where those conditions are met intelligently, there is no crop more certain to yield a profitable return.

Success may require a little higher order of farm practice and intelligence, but the additional brains used will be well repaid in the superior results. Moreover, this compulsory use of more brains will lead to extensive farming—farming with a larger thought-content—and possibilities far greater than those achieved under existing methods.

3. *Special Benefits.*—The potato excels the cereals as a formative factor in crop rotation, especially where soil improvement is an object. The large cash return from the potato crop not only suffices to pay for the manure or fertilizer used in its production, but in addition, may be charged with a plant food residuum sufficient to insure a heavy yield of succeeding crops of the rotation. Moreover, the value of the plant food removed by 200 bushels of potatoes per acre is only one-half of that removed by 60 bushels of corn, and less than three-fourths of that removed by 30 bushels of wheat. Experiment stations have demonstrated that land of average fertility may be made increasingly fertile and productive by this rotation, a consequence of far-reaching importance, as increasing fertility means larger yields and more profitable farming.

This leads to the proposition, would it not pay the farmers of the State, as individuals, to try what might be accomplished in the way of soil improvement by means of special crop rotations. Small areas could be used in this research work, and the potato, wheat, clover rotation is a safe one with which to begin the experiment. A state-wide movement of this kind would result in enormous accretions of farm wealth. For success with small areas would be extended to larger ones, so that crop yields and values would increase proportionately. With increasing wealth the environment of the farm would rapidly improve and the home life become happier and richer in those elements that make for the "higher life."

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Moreover, under the mental stimulus evoked in the solution of original farm problems, the individual farmer would become a thinker, keen of mind and nimble of wit, while the aggregate educational advance in the rural population would raise the status of farm life to a level not inferior to that of any other calling.

PAPAWS AND HOW TO GROW THEM.

ARTHUR W. OSBORN, Spiceland, Ind.

Before giving my methods of growing papaw plants from seed, I will say that my only experience is with the native plant of our State, the *Asimina triloba;* and my only acquaintance with its fruit is what I learned by seeing it in the woods and fencerows of the central portion of Indiana.

My liking for its fruit, together with the knowledge that it is (like the forests which gave it shelter) rapidly disappearing from my section, led me to wish to cultivate it. This incentive to make it a cultivated orchard plant was not felt when one could take a basket on arm, and get from the pasture lot back of the house all that his appetite called for.

But now all this is changed because of the destruction of the "patches" in the clearing away of the woodland, or by the trampling of the stock. Many of those who saw these "patches" melting away before the advance of agriculture thought to provide for themselves in the future by bringing some of the offshoots from the woods and transplanting them, only to find that from lack of rootlets scarce one in twenty-five would live; and from not knowing the germinating time of the seed, or how to protect the young plants, most others failed when they planted them.

I, myself, had had failures along both these lines before I met a late member of this body (Mr. James Little), who gave me points which led me to my present methods of propagation, which I will now briefly give.

The first thing to consider is good seed, to be taken from plants which show thriftiness of leaf and branch, and are profuse bearers, the fruit of which has the size, color, quality, time of ripening, and other points that are desired.

One will find ripe fruit on tree or ground from about September 1 to November 1, if we have no very cold weather. I divide my seed collection into what might be called "early" and "late," with October 1 to 10 as the dividing line between them, not forgetting the qualities of each by the rules laid down above.

Just before "papaw time" I get a box for each division of seed I wish to save, and after removing the tops and bottoms, I half bury them in a secure place in the garden, where they are exposed to all the changes of winter weather. Into these I place, from time to time, the seed fresh from

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the eaten fruit, covering them with enough soil to keep them moist; and in the spring, when the ground is in condition for corn planting, they should be planted in the seed rows, where they are to stay till they are ready to transplant.

As the young plants require shade, I plant the rows east and west about three and a half or four feet apart, supplying the shade with popcorn, and as the young plants do not appear till July, it is best to set prominent stakes at each end and use a garden twine; then the twine can be replaced as a guide to cultivation without fear of molesting the seed or sprouting plants. I used a slight coating of straw, applied about the last of June, just before the young plants should appear, and think that a little application just before winter set in would have prevented many of them being lost by frost-heaving. I place the seed in the rows as thick as if they were peas, removing the young plants for transplanting at two years old, although, if not too thick, they might be left till they are three, or perhaps four.

The growth the first season is about three or four inches, and the next brings it to an average of about ten or twelve, but the height as well as leaf and stem growth is as diversified as it is in the seed row of any other kind of nursery stock, and much can perhaps be learned by a careful, experienced man as to how to choose productive plants. From my limited observation, I think that from large-sized seed taken from good-sized, plump fruit, one can get by far the largest per cent of thrifty growth plants with dark green leaves.

Not only have I done so, but as proof that the contrary is also true, I planted seed from a very small kind, but whose qualities as to color, productiveness and flavor were good, and whose seed were as diminutive as the fruit was small. The plants today, as they stand in the seed row, are but of an average of nine inches, while many of the largest from premium seed, which have never been moved, measure twenty-four.

I have about 200 that were transplanted this spring, or were left in place in the seed row, all of which have made a good growth, the best being made by those that were not removed, and each were aided in growth that did not have the hot sun on them all day, but were somewhat shaded by tree, fence, or house, which makes me think that an "orchard" would be the better for corn shading for four or five years of their early growth.

As to the kind of soil best suited for the papaw, I will say I have only had experience with fruit from the woods, the oldest of my orchard plants being but three years old the spring of 1910, but from my knowledge of the woods-grown ones I will say that the best ones grow in full sun on yellow clay ground, although the finest "bushes" will be found on low, black

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ground, but the fruit is apt to be inferior and small, with dark freckle-like blotches on the skin, and this is the verdict of several papaw lovers about here whom I have consulted.

The people have some erroneous impressions which I think it will be well to speak of, one of which is that frost is required for the ripening of the fruit, and another is that all "yellow" ones are good, and the reverse true of the "white" ones. Answering this, I will say that the most and best of the crop gets ripe before we have a frost that will blacken sweet potato leaves.

This year (1909) at least one plate of the exhibited fruit at the State Fair was overripe, which would place the date at which it would drop off at about the last of August. At the date of this writing (November 15) I have a fine bunch of seven which were taken from the bush about the middle to the 20th of October, which would make the time of the ripe fruit over two months.

While I do not wish to show undue enthusiasm when I bespeak a place in our gardens or orchards for this delicious forest fruit, I do wish to say that it meets the tastes of an increasing number of people each year, that the woods-grown fruit has long had a limited sale in the cities, and I see no reason why, with selected, improved varieties under cultivation near the house where their degree of ripeness could be noticed, and so be sent to market or the table in the best shape, their cultivation might not be made to pay, if not in dollars and cents, at least in the enjoyment of their use by family and friends.

Wishing any member success to begin the culture of this fruit, I will refer again to the points that I think the most important. Get good seed, sorted as to time of ripening, quality, etc., which should never be allowed to get dry. Place them in marked boxes, winter exposed. Plant in May, with shade and cultivation provided for in a place protected from the scratching of chickens or the tramping of animals.

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REPORTS OF OFFICERS AND COMMITTEES.

Committees were appointed by the President as follows:

On President's address (appointed by Vice-President)—J. Troop, H. H. Swaim, C. M. Hobbs.

Resolutions—C. G. Woodbury, J. W. Carver, W. T. DeVilbiss.

Obituary—E. Y. Teas, L. B. Custer, J. G. Kingsbury.

Auditing—J. J. Milhous, J. M. Snodgrass, J. C. Grossman.

Awards—H. M. Stout.

Legislative—To succeed J. J. W. Billingsley, whose term expired, Mason J. Niblack, of Vincennes.

Secretary's Report—W. B. Flick, Lawrence.

REPORT OF THE SECRETARY.

For the Fiscal Year Ending Sept. 30, 1909.

W. B. Flick, Lawrence, Ind.

Receipts:	
From State appropriation, 1908	$2,600 00
Disbursements:	
Orders drawn on treasury	$2,600 00
Balance returned to State treasury	.....
The following warrants were drawn on the treasury:	
October 1, 1908.	
Burt-Wilson-Haywood Co., printing Purdue exhibit	$10 25
December 3, 1908.	
U. T. Cox, expenses as lecturer	28 38
W. B. Flick, office expenses	14 95
Sentinel Printing Co., office expenses	90 60
W. C. Reed, expenses as President	17 18
J. J. Milhous, expenses as Committee on Horticulture	1 50
J. M. Snodgrass, expenses as Committee on Horticulture	4 00
S. A. Hazelett, expenses as Treasurer	19 00
W. W. Stevens, expenses as lecturer	9 75
Prof. U. P. Hedrick, expenses as lecturer	88 40
A. H. Bogue, expenses as Committee on Horticulture	9 60
W. S. Ratliff, expenses as Executive Committee	5 15
James W. Carver, expenses as Committee on Horticulture	2 90
E. Y. Teas, expenses as Executive Committee	7 50
A. W. Shoemaker, expenses as Committee on Horticulture	1 65
Joe A. Burton, expenses as Superintendent Experimental Orchard	6 25

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E. R. Gustin, expenses as Committee on Horticulture	$8 35
C. N. Lindley, expenses as Committee on Horticulture	11 90
Etoile B. Simonds, expenses as lecturer	10 00
H. H. Swaim, supt. of exhibits	5 00
R. L. Beck, expenses as lecturer	3 90
L. B. Custer, expenses as Vice-President	4 00
James Troop, expenses as Executive Committee	4 55
R. A. Simpson, expenses as Committee on Horticulture	8 64
Joe A. Burton, salary as Superintendent Experimental Orchard	125 00
Burt-Wilson-Haywood Co., printing for Purdue exhibit	26 00
W. B. Burford, separates, memorial of Jno. C. Teas	38 00
S. A. Hazelett, premius paid at Purdue show	156 35
December 3, 1908.	
J. G. Schlotter, apples for banquet	4 50
Prof. S. W. Fletcher, expenses as lecturer	50 00
January 13, 1909.	
Montani Bros., music, Dec. 2, 1909	5 00
E. Y. Teas, expenses as Executive Committee	7 10
C. N. Lindley, expenses as Vice-President	11 10
W. B. Flick, expenses as Secretary	8 55
W. B. Flick, salary as Secretary	225 00
Joe A. Burton, salary as Superintendent Experimental Orchard	125 00
W. B. Flick, office expenses and supplies	10 60
S. A. Hazelett, premiums paid at Purdue Fruit Show	129 75
S. A. Hazelett, expenses as Treasurer	17 90
W. C. Reed, expenses as President	9 68
Joe A. Burton, salary as Superintendent Experimental Orchard	125 00
April 9, 1909.	
W. B. Flick, salary as Secretary	225 00
T. A. Coleman, expenses as Legislative Committee	10 00
W. B. Flick, postage and office supplies	44 91
James Troop, expenses Executive Committee and Committee Experimental Orchard	10 53
C. N. Lindley, expenses as Vice-President	9 60
W. C. Reed, expenses as President	7 20
Sentinel Printing Co., printing and office supplies	171 50
Ella S. Green, work as stenographer (reporting two meetings)	80 50
E. Y. Teas, expenses as Committee on Horticulture	2 75
S. A. Hazelett, expense as Treasurer	4 50
July 1, 1909.	
Joe A. Burton, salary as Superintendent Experimental Orchard	125 00
W. B. Flick, salary as Secretary	225 00
August 5, 1909.	
C. N. Lindley, expenses as Vice-President	12 35
H. H. Swaim, expenses as Executive Committee	12 30

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W. B. Flick, office expenses and supplies	$23 95
J. J. Milhous, expenses as Committee on Horticulture	3 45
A. H. Bouge, expenses as Committee on Horticulture	8 40
James Troop, expenses as Executive Committee	6 25
W. J. Ritterskamp, expenses as Committee on Horticulture	11 30
S. A. Hazelett, expenses, premiums and lectures at Centerville	50 90
J. M. Snodgrass, expenses as Committee on Horticulture	5 00
Sentinel Printing Co., printing office supplies	32 13
September 24, 1909.	
W. B. Flick, part of salary	69 45
Total disbursements	$2,600 00

IN ACCOUNT WITH THE SOCIETY.

November 30, 1908, amount in treasury	$384 50
September 30, 1909, received fees and dues	53 50
Total receipts	$438 00
Disbursements	.....
October 1, 1909, amount in treasury	$438 00

REPORT OF THE TREASURER.

SAMUEL B. HAZELETT, Greencastle.

To the Honorable President and Members of the Indiana Horticultural Society:

I submit the following report of receipts and disbursements, for the year October 1, 1908, to September 30, 1909, inclusive:

RECEIPTS.

1908. Oct. 1.	
Balance on hand	$390 50
Received from State	2,600 00
Total receipts	$2,990 50

DISBURSEMENTS.

	Voucher.	
Burt, Wilson & Co.	370	$10 25
U. T. Cox	1	28 38
W. B. Flick	2	14 95
Sentinel Printing Company	3	90 60
W. C. Reed	4	17 18
J. J. Milhous	5	1 50
J. M. Snodgrass	6	4 00
S. A. Hazelett	7	19 00

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W. W. Stevens	8	$9 75
Prof. U. P. Hedrick	9	88 40
A. H. Bogue	10	9 60
W. S. Ratliff	11	5 15
J. W. Carver	12	2 90
E. Y. Teas	13	7 50
A. W. Shoemaker	14	1 65
Joe A. Burton	15	6 25
E. R. Gustin	16	8 35
C. N. Lindley	17	11 90
Etoile B. Simons	18	10 00
H. H. Swaim	19	5 00
R. L. Beck	20	3 90
L. B. Custer	21	4 00
James Troop	22	4 55
R. A. Simpson	23	8 64
Joe A. Burton	24	125 00
Burt, Wilson & Haywood	25	26 00
W. B. Burford	26	38 00
S. A. Hazelett	27	156 25
J. G. Schlotter	28	4 50
S. W. Fletcher	29	50 00
Montani Bros.	30	5 00
E. Y. Teas	31	7 10
C. N. Lindley	32	11 10
W. B. Flick	33	8 55
W. B. Flick	34	225 00
W. B. Flick	36	10 60
Joe A. Burton	35	125 00
S. A. Hazelett	37	129 75
W. C. Reed	39	9 68
S. A. Hazelett	38	17 90
Joe A. Burton	40	125 00
W. B. Flick	41	225 00
T. A. Coleman	42	10 00
W. B. Flick	45	44 91
James Troop	46	10 53
C. N. Lindley	47	9 60
W. C. Reed	48	7 20
S. A. Hazelett	49	4 50
Sentinel Printing Co.	50	171 50
Joe A. Burton	51	125 00
W. B. Flick	52	225 00
C. N. Lindley	53	12 35
H. H. Swaim	54	12 30
W. B. Flick	55	23 85
J. J. Milhous	56	3 45
A. H. Bogue	57	8 40
Ella Shera Green	101	80 50

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James Troop	58	$6 25	
W. J. Ritterskamp	59	11 30	
S. A. Hazelett	60	50 90	
J. M. Snodgrass	61	5 00	
Sentinel Printing Co	62	32 13	
E. Y. Teas	102	2 75	
W. B. Flick	63	69 45	
Total disbursements		$2,600 00	
Balance on hand		390 50	
Total receipts			$2,990 50
			$2,990 50

There is a little difference between the report of Mr. Flick and myself. He paid me $53.50, which was dated probably in October, and I have charged myself with it on the next account, so there is a little difference, but you can see that it is all right.

Treasurer's report referred to Auditing Committee.

REPORT OF THE AUDITING COMMITTEE.

J. J. MILHOUS, Chairman, Valley Mills.

J. J. Milhous—Mr. President, your committee to audit the accounts of the Secretary and Treasurer find that the books have been well kept, but find a discrepancy of fifty cents which we suppose has been caused by a mistake in adding the figures.

Respectfully submitted,

J. J. MILHOUS,
J. C. GROSSMAN,
MR. SNODGRASS.

Sylvester Johnson—I move that the report of the committee be concurred in.

Secretary Flick—I want to say, that with regard to the mistake in figures, our reports were identical, and the stenographer must have made a mistake in making out the list. Our reports agreed with the Auditor's report exactly, and that could not have been if there was a mistake of fifty cents.

(Mr. Johnson's motion seconded, voted on and carried.)

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REPORT OF THE COMMITTEE ON PRESIDENT'S ADDRESS.

J. Troop, Chairman, Lafayette.

Your committee to whom was referred the President's address begs leave to report that we approve the suggestions made by the President concerning the various lines of work, but we would call especial attention to the recommendation concerning the necessity for a closer cooperation with the Purdue Experiment Station and the State Entomologist in the work which they are doing along the lines which have for their ultimate object the betterment of horticultural conditions in this State. We realize that with its limited funds, this Society can do but little in this direction except to lend its influence toward the encouragement of any and all such work which may be undertaken, but we also realize that this influence will aid mightily in accomplishing the desired results. We therefore recommend a hearty cooperation of this Society with these institutions, to the end that great good may come to the cause we represent.

Mr. DeVilbiss—I move that the report of this committee be received and placed on file.

Mr. Zion—I would like to ask whether they have in any way endorsed the proposition of the State Entomologist, recommending that the nurserymen spray diseased nurseries with pure coal oil, and then when cold, fumigating—sure death to young trees unless done in the hands of an expert. This State is being flooded with nursery stock and the people are being misled, and the reason is that the trees were killed before they were shipped out of the nursery.

(The motion was seconded, voted on and carried.)

REPORT OF THE LEGISLATIVE COMMITTEE.

C. M. Hobbs, Chairman, Bridgeport.
W. B. Flick, Lawrence.
L. B. Custer, Logansport.

Mr. Hobbs—You will remember that this is a standing committee, each of the members being appointed for a term of three years. Mr. Flick, Mr. Custer and myself comprise this committee at the present time. As Mr. Flick and myself live near the city, most of the work of this committee falls upon us. We met frequently and considered this matter and laid our plans. We were proceeding very nicely. We presented our claims to the chairman of the Ways and Means Committee of the House, and we had his personal assurance that our appropriation would be continued the same as

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heretofore. We met with the Finance Committee of the Senate and had the assurance of the chairman of that committee that he would report the bill under the usual appropriation for this Society. But, as you will remember, near the close of the Legislature they got into a wonderful rush, and they received word from the Governor that the appropriations would have to be cut, or at least come within certain limits, or he would not sign the general appropriation bill, so that it was necessary to do a general whittling down of the appropriations, and, unfortunately, some interests suffered considerably, and the Horticultural Society was one of those interests. I think it was the night before the night session before the last day of the meeting of the Legislature that our appropriation came up for consideration. Some one proposed that the appropriation be made six hundred instead of twenty-six hundred, the usual appropriation, and some one else seconded the motion, and without discussion it was immediately taken to a vote, and by a small majority the proposition carried and we were reduced to six hundred instead of our usual appropriation.

When I came to the city the next morning I found what had occurred during the night. I consulted our friends in the Senate (and we had some very warm friends who had stood by us in the work up to this time), and I asked them what should be done, and they advised that we let the matter rest where it was, and that it would be impossible at that time to take up the matter of a change, as it would require separate action by the Senate and the House Committee, and perhaps it would not be passed at all. So we have to report our appropriation as being six hundred dollars. We wanted you to know the facts of the case. Mr. Flick and I worked hard.

I think my time on this committee expires next year, and I want to say in anticipation of my retirement at that time, for the past twelve or fifteen years I have served on this committee, and I have worked faithfully, and we have usually been able to secure a pretty respectable appropriation, and I have done this at my own expense, except for the past two years, when I was at a considerable expense in attending the meetings of the committee and in carrying forward our work, and then I only charged for the actual money expended, not for my time. I think I have served my time, my day and generation well in this respect—at least as to length of time—and I am perfectly content to retire, and willing that some other shall take up the honors and the emoluments that go with the office.

Secretary Flick—Since this matter has been referred to, I would like to say that I endorse everything that Brother Hobbs has said, and I am going to give you a little further information in this regard.

At the time this matter was under consideration we thought we had everything arranged, and I received a telegram from my native State that

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my oldest sister wanted to see me, being on her death bed, and I had to leave. I went away on Wednesday and laid her to rest on Saturday and came home on Sunday evening, and it was during this time that the mischief was done. I have heard that some people have blamed me for going away and deserting my post at this time, but I don't believe anyone who knows the facts would make that kind of a statement. It was Representative Murphy of Crawfordsville that made the motion, and the matter was carried by one vote. Our friends asked for a reconsideration, but in the confusion this was not granted. So the matter stands as Brother Hobbs has said. I want to say that no one could work any more faithfully for anything than did Mr. Hobbs for this appropriation. He was here at all of the meetings—night meetings, most of them—and we will not try to lay the blame to anyone.

Mr. Custer—I was a member of that committee, but I wish to state that I never got any notice of any meeting; I expected to be called on to meet the committee, but I was not, and the only thing I could do was to send a communication to the Senator and Representative, which I did.

Mr. Hobbs—In defense of ourselves I will say that we considered that Mr. Custer was so far away that we hardly thought it necessary to bring him away down here, especially when everything looked so encouraging and promising. We had been promised everything we asked for, and under ordinary circumstances it would have gone through all right. No one dreamed of the final result. We had every assurance; in fact we were told that we would get our appropriation just the same as usual, and for this reason we thought it would be unnecessary to bring Mr. Custer over here.

REPORT ON EXPERIMENTAL ORCHARD.

JOE A. BURTON, Orleans, Superintendent.

The experimental orchard has been a failure and success the past season. A failure in that there were comparatively few blossoms; a success in that nearly every blossom produced an apple, and that the crop showed the value of the drenching spray. The following varieties produced a full crop:

Lou, Martha, Bailey, Sweet Florence, Sweet Russet, Tetofska, Peter, Iowa Blush, Indian, Wagoner, Shackleford, Talman Sweet, Missouri Pippin, York, Hibernal, Blushra.

The following varieties produced fair or good crops:

Transcendent, Gideon, Clayton, Duchess, Gar, Morgan's White, Babbitt, Springdale, Stayman, Wealthy, Summer Rambo, Mammoth Black Twig, Patton's Greening, Banana, Winesap, Mann, Winkler, Sweet June, King,

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Hydes King, McMahon, Milwaukee, Smith's Cider, Jonathan, Hoover, Kinnard.

The following varieties produced a light crop:

Indiana Favorite, English Russet, Thaler, Grimes, Fameuse, Fall Orange, Dominie, Chenango, Golden Sweet, Red June, Early Harvest, Akin, Salome, Transparent, Scott's Winter, Gano, Maiden's Blush, Excelsior, Big Rambo, Yellow Belleflower, Dr. Matthews, Rall's Genet.

The following of the newer kinds are very promising:

Dr. Matthews, Gideon, Duchess, Gar, Babbitt, Stayman, Summer Rambo, Hibernal, Tetofska.

Dr. Matthews is a large streaked fall apple of a superior quality. Gideon and Duchess were superb this season. About 98 per cent of Duchess and 99 per cent of Gideon passed for No. 1. Gar is a green-white-yellow apple, above medium size, of very fine flavor.

Babbitt is very desirable, a brilliant copper color, very sour and extremely delicious. It is irregular in form, frequently being triangular.

Stayman is just a grand apple; its only defect is the color.

Summer Rambo is similar to Fall Rambo in quality, but not so large. Two-thirds of the tree gave 10 bushels for market.

Hibernal is not as its name suggests, a winter apple, but midsummer. It is very large and of good quality, save very sour. It had only one light spraying after blooming, so was somewhat wormy.

Tetofska is somewhat like Transparent, a good bearer and good quality, but the tree makes poor growth.

I condemn all the summer crabs, because I can't sell them. I like only one crab, the Kentucky Red Cider. It is good for every purpose the summer crabs are, will keep all winter, is the richest cooking apple grown, and is the best of all apples for cider.

Kinnard, that promised so much last year, kicked clear out of the harness. While good size, it was a dark green, nauseating color, scabby, pocky and very ugly.

Many of the seedlings bore full crops. A few are very promising, among these two Winesap and one Kansas Keeper seedling. I exhibited one Winesap and one Kansas Keeper seedling at the Spokane Apple Show.

A part of the orchard was sprayed twice after the bloom dropped, with a drenching amount. The rest one time, with the ordinary amount. The drenched trees had comparatively wormless fruit till the second brood of codling moth; then they were free at the calyx, but many entered at the side. The same was true in the orchard of Burton Fruit Company; also in my own orchard. Consequently all of our early fruit was about perfect.

A few trees in the experimental orchard were sprayed when in full bloom, that is when they had the greatest number of blossoms. A few had

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fallen and some were not yet open. Such trees set but few apples, and they were considerably wormy.

The financial condition of the orchard is as follows:

Money on hand from last year	$87 40	
Received for wheat	38 00	
Hog pasture	10 00	
Apples	327 50	
Total		$462 90
Expenses—		
Spraying material	$25 00	
Cowpeas	20 00	
Handling apples	109 15	
Total		154 15
Balance on hand		$308 75

From now on the orchard will probably be self-supporting, and sometimes yield some revenue. The only thing to prevent this is the great number of varieties, many of them being entirely worthless.

DISCUSSION.

Amos Garretson—What about the Mammoth Black Twig?

Joe A. Burton—We did not have the apple very long; perhaps if we had had it longer it would have shown up better.

Rev. Smith—When did you gather it?

Joe A. Burton—The latter part of September.

Mr. Pierce—I would like to inquire what you think of the Tetofska, and why you place it among the new sorts? I have strong, vigorous trees planted forty-four years ago.

Joe A. Burton—I will answer that by saying that I never saw one until last season. It is a July apple, isn't it?

Rev. Smith—Yes; it is the earliest, except the Yellow Transparent. I think it was introduced about fifty years ago, with the Astrachan.

Chairman Reed—I think I can tell you why it is that you have never seen any of the trees before, and that is that it takes about six or seven years to grow large enough for the nurseryman to sell, and for this reason they have been grown very little.

Chairman Reed—Are there any more remarks while we are on this subject of the experimental orchard?

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Mr. Carver—What is the Baldwin worth in southern Indiana?

Joe A. Burton—There are very few Baldwins grown. Occasionally a man will have them, but it is a failure over there as a rule, and is classed with the Ben Davis. Mr. Keach can handle the Ben Davis apple if he likes, but I want to say that in all apples I have sold I have never had an order for as many as half a dozen barrels of Ben Davis apples put together.

Mr. Carver—The Baldwin is not grown in Greencastle, either.

Secretary Flick—How about them in Ohio?

Mr. Pierce—I can raise one hundred dollars' worth of Baldwins better than I can raise ten dollars' worth of Grimes Goldens. They are more profitable and productive in northern Ohio. A man had sixty-four bushels of Baldwins on one tree this off year.

Secretary Flick—They grow better in northern Indiana, too.

Joe A. Burton—I don't want to give up the idea of growing good apples. If you will notice the markets you will find that the Ben Davis is at the tail end, and I don't want to be there. I want to be up and doing, and be one of the first, and I believe that Mr. Keach would rather have my Grimes than my Ben Davis. People want the Grimes. It will bear more apples with us than the Ben Davis, and pay nearly as well. What you can gather of the Ben Davis keeps pretty well, but we have had quite a lot of brown rot before gathering time, and on that account lose many.

Mr. Zion—I should like to say one word. Mr. Burton says that if you will watch the market closely you will find that the Ben Davis is always at the end of the list. If you watched the New York market last spring, which is as good as any market, the Baldwin sold for seven dollars, day after day, and the Ben Davis sold for six-fifty, right beside it. That is what the market does for the Ben Davis in New York. I am like Mr. Keach; it is merely a local prejudice against the Ben Davis, and the majority of our people do not know one apple from another. Most of them could not pick out five varieties if they were asked to do so. It is said that when people come to the wholesale house for apples and are asked what kind they want, they will say, "Anything but a Ben Davis." Some of the commission men have told me that they take the Ben Davis and mark it the Gano and send it out, and almost invariably this same party will come back the second time for the Gano, but insist they do not want the Ben Davis. This ignorance prevails throughout the State, and I dare to say that nine-tenths of the people could not pick out five different varieties of fruit.

Mr. DeVilbiss—Two would be more like it.

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Mr. Zion—I guess you are right. If the Ben Davis is eaten when it should be, it is very good, and it is only on account of the ignorance that prevails throughout the country that it is not liked.

Mr. DeVilbiss—A few years ago I was selling Ben Davis apples to some of the best people in Ft. Wayne, and a lady remarked to me one day that I needn't bring her any Ben Davis apples, and I said, "My good lady, you have already used twenty bushels." Last week I received an order from a man to whom I had sold Grimes Golden, and he told me he didn't want any more of the Grimes Golden, for they were too good, but would take the Ben Davis.

Rev. Smith—What is your most profitable apple?

Joe A. Burton—I believe every other man in Indiana knows my apple; I have never heard half a dozen say but what it was the best, and that is the Grimes.

REPORT OF RESOLUTIONS COMMITTEE.

C. G. Woodbury, Chairman, Lafayette.

Prof. Woodbury—I may say that I was not able to get in touch with one of the members of our committee, but I wish to submit the following:

We recommend the establishment of a small experimental or demonstration orchard on the State Fair Grounds to show the more popular varieties of our common or orchard fruits, the proper method of caring for the same, pruning, spraying, etc., provided the State Board will set apart the space and provide for the planting and maintenance of the same.

Sid Conger—It is easy to set aside the space, and I would like to make a motion that the Secretary take care of it. The State Board will give the space if you will take care of it.

Prof. Woodbury—This proposition would have to be financed.

Sid Conger—There is no financing it at all. We want the Secretary to take care of it without any pay. He is the right one to do it, and it ought to have been there years ago.

Mr. Hobbs—I suggest that this matter be referred to the Executive Committee for its deliberation and proper consideration.

Chairman Reed—I think that is a pretty good suggestion, for it would eventually have to come there anyway.

(Referred to Executive Committee.)

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REPORT OF COMMITTEE ON AWARDS.

Fruit Show at Forty-ninth Annual Meeting, December 1-2, 1909, State House, Indianapolis.

H. M. STOUT, Trafalgar, Judge.

CLASS I. Apples.

Best six varieties for commercial orchard:

1. Reed & Fielding, Glenwood.....$5 00
2. Chris King, Rushville..... 2 50

Best ten varieties for home use:

1. Chris King, Rushville..... 5 00
2. J. M. Beaver & Son, Glenwood..... 2 50

Plate Baldwin:

1. Chris King, Rushville..... 1 00
2. Chris King, Rushville..... 75

Plate Ben Davis:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. Chris King, Rushville..... 75

Plate Benoni:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. J. M. Beaver & Son, Glenwood..... 75

Plate Clayton:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate English Russet:

1. Abraham Bros., Martinsville..... 1 00
2. Abraham Bros., Martinsville..... 75

Plate Fallawater:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. Chris King, Rushville..... 75

Plate Fameuse:

1. R. L. Beck, Liberty..... 1 00
2. J. M. Beaver & Son, Glenwood..... 75

Plate Grimes:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate Hubbardston:

1. Reed & Fielding, Glenwood..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate Indian:

1. Reed & Fielding, Glenwood..... 1 00
2. Chris King, Rushville..... 75

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Plate Indiana Favorite:

1. Reed & Fielding, Glenwood.....$1 00
2. Reed & Fielding, Glenwood..... 75

Plate Ralls:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. J. M. Beaver & Son, Glenwood..... 75

Plate Jonathan:

1. Reed & Fielding, Glenwood..... 1 00
2. Chris King, Rushville..... 75

Plate King:

1. Reed & Fielding, Glenwood..... 1 00
2. Chris King, Rushville..... 75

Plate Maiden Blush:

1. Reed & Fielding, Glenwood..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate Mann:

1. Chris King, Rushville..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate Moore Sweet:

1. Chris King, Rushville..... 1 00
2. Chris King, Rushville..... 75

Plate Northern Spy:

1. H. H. Swaim, South Bend..... 1 00
2. H. H. Swaim, South Bend..... 75

Plate N. W. Greening:

Not worthy.

Plate R. I. Greening:

1. Chris King, Rushville..... 1 00
2. J. M. Beaver & Son, Glenwood..... 75

Plate Pewaukee:

1. Chris King, Rushville..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate Rambo:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. C. N. Lindley, Salem..... 75

Plate Rome Beauty:

1. Chris King, Rushville..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate Salome:

1. R. L. Beck, Liberty..... 1 00
2. S. A. Hazelett, Greencastle..... 75

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Plate Smith Cider:

1. R. L. Beck, Liberty.....$1 00
2. Chris King, Rushville..... 75

Plate Starke:

1. Reed & Fielding, Glenwood..... 1 00
2. Chris King, Rushville..... 75

Plate Stayman Winesap:

1. Chris King, Rushville..... 1 00
2. Reed & Fielding..... 75

Plate Wagener:

1. J. F. Coffin, Greenfield..... 1 00
2. W. T. DeVilbiss, Ft. Wayne..... 75

Plate Wealthy:

1. Reed & Fielding, Glenwood..... 1 00
2. Chris King, Rushville..... 75

Plate White Pippin:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. Arthur E. Woods..... 75

Plate Willow Twig:

2. J. M. Beaver & Son, Glenwood..... 75
1. J. M. Beaver & Son, Glenwood..... 1 00

Plate Yellow Transparent:

1. Chris King, Rushville..... 1 00
2. .....

Plate York Imperial:

1. Norris Garretson 1 00
2. S. A. Hazelett, Greencastle..... 75

Plate Yellow Bellflower:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate Vandevere Pippin:

1. J. M. Beaver & Son, Glenwood..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate Largest Apple:

1. Reed & Fielding, Glenwood..... 1 00
2. J. M. Beaver, Glenwood..... 75

Plate Most Beautiful Apples:

1. Reed & Fielding, Glenwood..... 1 00
2. Chris King, Rushville..... 75

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CLASS II. Pears.

Plate Kieffer:

1. Milton Stemple, Indianapolis.....$1 00
2. H. H. Swaim, South Bend..... 75

Plate Anjou:

1. Abraham Bros., Martinsville..... 1 00
2. Reed & Fielding..... 75

Plate Garber:

1. Milton Stemple, Indianapolis..... 1 00
2. Milton Stemple, Indianapolis..... 75

Plate Anjouleme:

1. Reed & Fielding, Glenwood..... 1 00
2. Reed & Fielding, Glenwood..... 75

Plate any deserving variety:

1. Reed & Fielding, Glenwood..... 1 00
2. Reed & Fielding, Glenwood..... 75

CLASS III. Miscellaneous Fruits.

Plate Orange Quince:

1. W. B. Flick, Lawrence.....$1 00
2. J. F. Coffin, Greenfield..... 75

Plate Champion Quince:

1. Chris King, Rushville..... 1 00
2. Chris King, Rushville..... 75

Collection of Persimmons:

1. Chris King, Rushville..... 1 00
2. Chris King, Rushville..... 75

Collection Nuts grown in Indiana:

1. Arthur E. Woods..... 1 00
2. Ed. A. Eickhoff, Wanamaker..... 75

CLASS IV. Flowers.

Flat Bouquet:

1. Mrs. Mary Flick, Lawrence.....$1 00
2. .....

Round Bouquet:

1. Mrs. Mary Flick, Lawrence..... 1 00
2. .....

CLASS V. Vegetables.

Plate Early Ohio Potatoes:

1. Abraham Bros., Martinsville.....$1 00
2. Abraham Bros., Martinsville..... 75

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Plate Rural New Yorker Potatoes:

1. Abraham Bros., Martinsville.....$1 00
2. Abraham Bros., Martinsville..... 75

Plate Green Mountain Potatoes:

1. Abraham Bros., Martinsville..... 1 00
2. Abraham Bros., Martinsville..... 75

Plate Irish Cobbler Potatoes:

1. Abraham Bros., Martinsville..... 1 00
2. Abraham Bros., Martinsville..... 75

Collection of Potatoes:

1. Abraham Bros., Martinsville..... 2 00
2. Abraham Bros., Martinsville..... 1 00

REPORT OF COMMITTEE ON AWARDS.

Fruit Show at Purdue University, January 11-16, 1909.

T. A. Farrand, Eaton Rapids, Michigan, Judge.

Class I. Apples, Pears and Quinces.

Apples.

Five varieties for home use:

Southern Indiana.....Collection not worthy

Central Indiana—

1. J. M. Beaver & Son, Glenwood.....$5 00
2. Chris King, Rushville..... 2 00

Five varieties for market:

Central Indiana—

1. J. M. Beaver & Son, Glenwood.....$5 00
2. Chris King, Rushville..... 2 50

Best and most attractive package of apples, not less than one bushel:

1. J. M. Beaver & Son, Glenwood.....10 00
2. Reed & Fielding, Glenwood..... 5 00

Plate Baldwin:

1. Chris King, Rushville..... 1 50
2. D. G. M. Trout, Decatur..... 75

Plate Ben Davis:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. Chris King, Rushville..... 75

Plate Black Gilliflower:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son..... 75

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Plate Canada Reinette:

Not true to name; disqualified.

Plate Clayton:

1. Not worthy.
2. J. M. Beaver & Son, Glenwood.....$0 75

Plate English Russet:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. .....

Plate Fallawater:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. D. G. M. Trout, Decatur..... 75

Plate Genet (Ralls Genet):

1. D. G. M. Trout, Decatur..... 1 50
2. .....

Plate Grimes:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate Hubbardson:

1. Chris King, Rushville..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate Indian:

1. Chris King, Rushville..... 1 50
2. Chris King, Rushville..... 75

Plate Indiana Favorite:

1. Not worthy.
2. Reed & Fielding, Glenwood..... 75

Plate Jonathan:

1. Walter W. Cole..... 1 50
2. B. F. Cole, Trafalgar..... 75

Plate King:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. Chris King, Rushville..... 75

Plate Maiden Blush:

1. Reed & Fielding, Glenwood..... 1 50
2. Chris King, Rushville..... 75

Plate Mann:

1. Chris King, Rushville..... 1 50
2. Bert Belshaw, Lowell..... 75

Plate N. W. Greening:

1. Not worthy.
2. D. B. Johnson, Mooresville..... 75

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Plate Northern Spy:

1. Chris King, Rushville.....$1 50
2. D. G. M. Trout, Decatur..... 75

Plate Peck:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. .....

Plate Pewaukee:

1. Chris King, Rushville..... 1 50
2. Chris King, Rushville..... 75

Plate Rambo:

1. Not worthy.
2. Chris King, Rushville..... 75

Plate R. I. Greening:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate Rome Beauty:

1. Chris King, Rushville..... 1 50
2. Chris King, Rushville..... 75

Plate Roman Stem:

1. Not worthy.
2. J. M. Beaver & Son, Glenwood..... 75

Plate Ronk:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate Salome:

1. S. A. Hazelett, Greencastle..... 1 50
2. S. A. Hazelett, Greencastle..... 75

Plate Starke:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate Stayman Winesap:

1. Chris King, Rushville..... 1 50
2. Chris King, Rushville..... 75

Plate Summer Rambo:

1. Reed & Fielding..... 1 50
2. .....

Plate Vandevere:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate Wagener:

1. D. G. M. Trout, Decatur..... 1 50
2. .....

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Plate Wealthy:

1. Chris King, Rushville.....$1 50
2. Reed & Fielding, Glenwood..... 75

Plate Westfield:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate White Pippin:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate Willow Twig:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate Winesap:

1. Chris King, Rushville..... 1 50
2. W. H. Ross, Dale..... 75

Plate Wolf River:

1. S. A. Hazelett, Greencastle..... 1 50
2. S. A. Hazelett, Greencastle..... 75

Plate Yellow Bellflower:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. J. M. Beaver & Son, Glenwood..... 75

Plate York Imperial:

1. D. B. Johnson, Mooresville..... 1 50
2. S. A. Hazelett, Greencastle..... 75

Plate any other deserving variety:

1. J. M. Beaver & Son, Glenwood..... 1 50
2. Bert Belshaw, Lowell..... 75

Sweepstakes.

Best ten varieties for any purpose:

J. M. Beaver & Son, Glenwood.....$15 00

Pears.

Plate Anjou:

1. Reed & Fielding, Glenwood.....$1 50
2. Reed & Fielding, Glenwood..... 75

Plate Anjouleme:

1. Reed & Fielding, Glenwood..... 1 50
2. Reed & Fielding, Glenwood..... 75

Plate Clairgeau:

1. W. B. Flick, Lawrence..... 1 50
2. W. B. Flick, Lawrence..... 75

Plate Kieffer:

1. Chris King, Rushville..... 1 50
2. Chris King, Rushville..... 75

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Quinces.

Plate Orange:

1. Chris King, Rushville.....$1 50
2. W. B. Flick, Lawrence..... 75

Plate Champion:

1. Chris King, Rushville..... 1 50
2. W. B. Flick, Lawrence..... 75

Plate Meech:

1. Not worthy.
2. W. B. Flick..... 75

CLASS V. POTATOES.

Collection, not less than five varieties:

1. W. J. Ritterskamp, Princeton.....$10 00

REPORT OF OBITUARY COMMITTEE.

E. Y. TEAS, Chairman, Centerville.

A worthy memorial to our departed brother, Professor W. H. Ragan, appears at another place in this report. During the past year, however, Joseph C. Ratliff, of Wayne County, another of our earlier members, has passed away, and your committee presents in his memory the following from a memorial prepared by his son, Walter S. Ratliff, of Richmond, Ind.

OBITUARY OF HON. JOSEPH C. RATLIFF, LATE OF RICHMOND, WAYNE COUNTY, INDIANA.

Joseph C. Ratliff was born near Richmond, Indiana, July 6, 1827, and died at Reid Memorial Hospital on October 16, 1909, aged 82 years, 3 months and 10 days.

His birthplace was in a little old log cabin on the Cornelius Ratliff farm, just north of the city of Richmond. He was a third child of a family of ten children, of Cornelius and Mary Kinley Ratliff. His ancestors were of English and Dutch descent, and were among the earlier emigrants to the New World. One was present at the treaty of William Penn with the Indians.

He spent his early life on the farm, mostly in his father's nursery, where his inclinations soon drifted to horticulture, in which later in life he was so prominently connected.

He attended the district schools in the neighborhood, held in log houses, until ready to enter the Richmond Academy, which was quite an institution at the time. This was followed by teaching in the district schools, one of which, singularly enough, was located on the farm from which he was

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taken to his last resting place. About this time his father was supplying fruit trees to customers, some of whom came as far as from the Wabash river in covered wagons.

Desiring to enter another walk of life, he pursued the study of dentistry with Dr. Webster, of Richmond, to be followed by a year's study of medicine with Dr. Plummer. In the years 1851 and 1852, he was a student in the Western Reserve Medical College, Cleveland, Ohio, returning to his native city to practice dentistry and surgery for two years.

In 1852, on October 16th, he married Mary Francis Crawford, daughter of Daniel and Agnes Crawford of Richmond, who was his congenial companion for nearly 50 years, or until her death, December 30, 1901. He has four children living, Mrs. Laura Bates of Liberty, Benjamin Ratliff of Paoli, and Horace and Walter Ratliff of Richmond.

In 1854 he engaged in the manufacture of paper under the firm name of the Hoosier Paper Manufacturing Company; from that he followed the carpenter's and millwright trade, enabling him to aid in the construction of farm buildings and flouring mills that were being built along Whitewater river. Trading his milling interests for a farm three miles west of Richmond, he engaged in farming, in which he was successful, owning three farms soon after, under good cultivation.

During the Civil War he was an enrolling officer and gave much of his efforts to the Federal soldiers during the conflict, furnishing two of his adopted sons as volunteers.

In 1872 he removed to another farm, put up new buildings, where he resided until he removed to the city, placing each of his three sons on his farms, which relieved him of active duties in the country. While living in the city he was actively associated with many of the leading enterprises. He was the secretary and treasurer of the Wayne Farmers' Insurance Company during its existence. He was a director as well as vice-president of the Union National Bank, which he aided in organizing. At one time a director of the Centerville National Bank and a director of the First National Bank of this city. For twenty-four years he was president, superintendent and treasurer of the Wayne County Turnpike Company, known as the "Old National Road" company, and was detailed to sell the same to the county commissioners, which was done in June, 1895. Aside from his business and executive interests, he contributed much to the success of Purdue University, of which institution he was a trustee for thirteen years, seven years of which he was the president of the board of Trustees.

For many years he was a trustee of Miami Valley College at Oxford, Ohio; a trustee of Swarthmore College of Pennsylvania, and trustee of the Richmond Business College.

His years of service as president of the Board of Park Commissioners

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of Richmond were cheerfully given, and through his efforts the resetting of young trees in Glenn Miller and other parks will in time greatly enhance their beauty. He secured the late ex-President Benjamin Harrison to plant a forest tree for the city, which is still growing. The Old Settlers' Picnic Association holds its annual gathering in this county, and he had been its secretary for twenty years.

One of the foremost promoters of the County Historical Society, being its secretary and custodian for many years, he aided much in the collection of records and historical data of value. But few men in his community had charge of so many estates with the Wayne Circuit Court, and it was said that he had so many guardian children he could not distinguish them apart. As member of the Wayne County Argicultural and Horticultural Society, which was organized in 1835, he served as its secretary and even president for several years. In 1863 he became a member of the Indiana Horticultural Society, and was a life member at his death. Aside from serving on the Executive Committee many years, he was its president in 1872, 1873, 1874 and 1890. Many times he aided the local society in entertaining the members of the State Society at summer meetings held at Richmond, and through his life his love for flowers and fruits was ever manifest.

In politics he was always a Republican, being a zealous advocate of that party's policies and principles, and in 1875 he was a representative in the General Assembly of the State of Indiana. He was a very prominent Mason; served as Worshipful Master of Centerville Lodge, member of Royal Arch and Richmond Commandery of Knights Templar; Past Grand Master of Richmond White Water Lodge of Odd Fellows.

Among the unique organizations was that of the "Pioneers of 1827." Annual gatherings of those living in the county born in that year were held, among which were to be found many of our most prominent citizens.

Joseph C. Ratliff was a man of domestic tastes, ever showing his chief interest centering in his home and family, and did all in his power to promote the happiness of wife and children. In every position which he, in his eventful life, has been called upon to fill, he has been eminently successful. As a business man he was upright, reliable and honorable. In all places, and under all circumstances, he was loyal to truth, honor and right, justly regarding his self-respect and the deserved esteem of his fellowmen as infinitely more valuable than wealth, fame or position. In those finer traits of character which so attract and endear man to man in ties of association and friendship, he was royally endowed. Few men had more devoted and endearing friends than he, and none excelled him in unselfish devotion and unswerving fidelity to the worthy and devoted recipients of his confidence and friendship.

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ELECTION OF OFFICERS.

President Reed—Nominations for President for the ensuing year are now in order.

Mr. Teas—I wish to place in nomination the name of C. N. Lindley.

Prof. Troop—I move that the nominations be closed and that the Secretary be instructed to cast the entire vote of the Society for Mr. Lindley. (Carried.)

Chairman Reed—The next will be nominations for Vice-President.

Mr. Bogue—I wish to nominate J. C. Grossman.

C. N. Lindley—I move that the nomination be closed and that the Secretary be instructed to cast the entire vote of this Society for Mr. Grossman. (Carried.)

Chairman Reed—The next will be the election of the Secretary. Since our appropriation has been cut down we will not be able to pay our Secretary a very large salary, and I think it would be a good idea to let the Secretary know before he begins his duties just what his salary will be. I believe it has been decided that the Society can only afford to pay the Secretary $100 this year, out of their appropriation.

Prof. Troop—That is not what we would like to pay, but we have got to pay.

Chairman Reed—I thought we had better make this explanation before the nomination was made.

Mr. Milhous—I nominate Prof. Woodbury.

Prof. Woodbury—I wish to make a few remarks. I have been approached on this proposition by several members since this meeting started yesterday, and it seems to me that it is due to the Society that I should make my position in the matter very clear. I told every one who approached me on this proposition that I did not care to be Secretary of the Society, and that is the way I have felt about it. Since I have been connected with this Society I have seen a certain amount of friction in the Society; there has been a factional feeling which we are all familiar with, and I have felt, perhaps, that if I should be elected Secretary this feeling, instead of disappearing, might continue. It seems to me that if this Society is going to do what it ought to do, all of us must pull together. We want to increase our membership. And if there is any member who feels that by the secretaryship going to Purdue, this factional feeling in the Society will be continued, I don't think it would be in the interest of the Society for me to accept the position. I have discouraged those who came

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to me and broached the secretaryship. Then, there is another thing to consider, and that is if the secretaryship should go to me it would possibly be necessary to close the office here and have our headquarters at the Experiment Station, and it would be necessary for me to conduct the official business of the Society from Lafayette. That is my feeling in regard to this proposition. I feel that we ought to work for the best interests of the Society, and if I were convinced that by being Secretary we could all work together I would be willing to serve. If there are any who feel otherwise, I certainly would not want my name considered in this connection.

Mr. Custer—It seems to me, that even though our appropriation has been cut to six hundred dollars, that we ought to be able to pay our Secretary more than one hundred dollars. The time has not been for years when the Secretary has worked for so small an amount. I am satisfied that if we can bridge over for the next two years that the Legislature will increase our appropriation.

Mr. Henby—I would like to ask the Secretary what our annual membership fee is. It seems to me the Society handles more than six hundred dollars, notwithstanding the reduction in the appropriation, and I think we should not pay less than $200 or $250 a year.

Secretary Flick—During the time in which we were receiving the support of the State the matter of fees and dues was let run, and people let their dues run for three or four years and then pay up, and we would get between $75 and $100. This year, perhaps, it will amount to more than that, for the members seem to understand that since the appropriation has been cut down it is more necessary.

While I am on the floor I would like to state that we had a very hard time to retain the offices which we have in this building, and unless they are occupied permanently by this Society they will be occupied by some one else, for there are lots of people around here who really need them and would like to have them. If the Society wishes to abandon them they should say so.

I have been criticised for not offering my services as a candidate. It has been said that the present Secretary stuck to the office as long as there was anything to be got out of it, and then when there isn't he has abandoned it. I want to say that with the nine hundred dollars as a salary, and paying the office expenses, it has been no remunerative income for a man who has other business, and it has not been a piece of graft or anything of the kind.

Prof. Woodbury referred to the matter of harmony. We all know that there has not been the harmony that there should have been, and I think all of us ought to do something for the sake of harmony.

I wish to say, in closing my remarks, that I do not think it would be a good plan to abandon the office here.

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Mr. L. B. Custer—It seems to me that we have over one thousand dollars available for our expenses for the next year, and that certainly would justify the increasing of the Secretary's salary to something like $250 or $300. With that much of a salary he could then keep that room. I know there has been a great effort made by the State officers here in this building to wrench that room from us, and so I think it would be a good idea to do as I have suggested and thereby be perfectly safe on this ground.

Sid Conger—There seems to be but one candidate, and he states to us that he will only accept one hundred dollars. He has stated his terms and conditions. Let's go to work and elect him or else get some other candidate and elect him.

Mr. DeVilbiss—If Prof. Woodbury were elected Secretary his vim, vigor and ability would create harmony more than anything else could. If we are to lose these rooms entirely by transferring this office to Purdue, I seriously object, for I don't believe we ever ought to lose these rooms under any condition or consideration; we ought to fight first, last and all the time to retain them. If, by increasing the salary to two or three hundred dollars, Prof. Woodbury can retain these rooms, let us by all means do that. I would rather take a private subscription, and I will give five dollars on that myself.

Chairman Reed—I will say in regard to these rooms that I went through the fight to retain them, and there is no way whatever that they can be taken from us except by an act of the Legislature. If you will keep your eyes open and see that they do not slip in a blind horse or something of that kind, you will be all right. As long as our books and things are in there the rooms will be ours, for they were set aside for this Society when the house was built, and the only way, as I have stated before, that they can be taken away from us would be by an act of the Legislature.

Secretary Flick—I wish to state that that is in theory the condition, but they continually use these rooms as storerooms when we are not in there all the time. You can see, yourselves, that they have already begun to use it as such. I think this room should be occupied at least one day in the week.

Prof. Douglass—I got in a little bit late for this discussion, and I don't know all that has been said on the subject of secretaryship, but since Mr. Flick seems not to want to take the work, I would like to suggest the name of Prof. Chamberlain. He is a good man for the place, and will do the work well. He has served as an officer of the local horticultural society and of the agricultural society, and I think his name should be taken under consideration by this Society, and therefore I propose his name.

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Mr. DeVilbiss—I would like to say that I believe Mr. Chamberlain is a temporary resident of this State. He owns a farm in Ohio and will be with us but a short time, most likely, and I don't believe it would be wise to consider his name for a moment.

Chairman Reed—We should have some tellers, and I will appoint Harry Hobbs and Mr. Stout.

Prof. Douglass—I would like to say just one word. I have nothing at all against either of the candidates. I nominated Prof. Chamberlain with the view of keeping the office open here, as Prof. Chamberlain is teaching in the Manual Training School here and would be able to keep the rooms open practically every afternoon in the week.

In regard to the point that was made relative to his owning property in Ohio, that is true, but it is also true that he is a local property owner here as well, and I don't think that point would be well taken.

Mr. Hobbs—It seems to me that unless you pay the Secretary salary enough to justify him in keeping this office open it is foolish to try to do so, for unless a competent person is here to answer questions and give advice, it is impractical to talk of keeping the office open. These rooms belong to us and there will be no trouble about keeping them as long as we watch the Legislature in regard to them.

Mr. H. H. Swaim—I would like to say, in addition to what Mr. Hobbs has said, that would not interfere in the least with holding our meetings here in these rooms.

Chairman Reed—You may now prepare your ballots.

Secretary Flick—Mr. President, the ballot stands:

Chamberlain	30
Flick	1
Woodbury	37

Chairman Reed—As Prof. Woodbury secured the majority of the votes cast, I declare him Secretary for the coming year.

Now we will have the nominations for Treasurer.

H. H. Swaim—In view of the fact that our present Treasurer has filled this office so capably and so well, I would like to move that the Secretary be instructed to cast the entire vote of the Society for Mr. Hazelett for Treasurer for the coming year. (Carried.)

Chairman Reed—We are now ready to take up the different districts.

The following were elected as local Vice-Presidents for their respective congressional districts:

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District 1—W. J. Ritterskamp, Princeton.
District 2—R. A. Simpson, Vincennes.
District 3—T. J. Heacock, Salem.
District 4—H. M. Stout, Trafalgar.
District 5—J. W. Carver, Greencastle.
District 6—J. K. Henby, Greenfield.
District 7—J. J. Milhous, Valley Mills.
District 8—Amos Garretson, Pendleton.
District 9—J. M. Snodgrass, Kirklin.
District 10—G. N. Moyer, Laketon.
District 11—J. A. Steinman, McGrawsville.
District 12—A. H. Bogue, Lima.
District 13—George Matthews, South Bend.

Chairman Reed—There is one member of the Executive Committee whose membership expires.

Mr. H. H. Swaim—I rise to nominate Mr. E. Y. Teas.

Mr. Hoover—I wish to nominate Mr. Flick.

Secretary Flick—Before the ballot is cast, I wish to say I will not appear as a candidate against Mr. Teas. He is an old and honored member, and has been very active in the work since it was chartered, and therefore I withdraw my name.

H. H. Swaim—I move that the Secretary be instructed to cast the entire vote of this Society for Mr. Teas.

(Seconded, voted on and carried.)

Secretary Flick—I wish to thank the Society for the kindness, courtesy and cooperation which they have given me through the several years during which I have served them as Secretary. I want it understood, also, that it is not on account of the salary that I refused to accept the position again, or allow my name to be used. I think, by having a change, perhaps there will be more harmony than before, and that is necessary for the success of any undertaking. I wish to say that I expect to have more leisure now to do some general work for the Society. I hope that in two years from now the Society will be put in a more prosperous condition. I thank you.

(Applause.)

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REPORTS OF DISTRICT VICE-PRESIDENTS ON HORTICULTURAL CONDITIONS FOR 1909.

REPORT OF SECOND DISTRICT.

R. A. SIMPSON, District Vice-President.

The fruit crop in the Second District was very poor this year. Peaches about one-half crop; apples, pears and cherries almost a failure. Small fruits poor crop, but of good quality.

Failure in apple crop mostly due to very poor foliage in 1908, followed by either weak or no setting of fruit buds, which in 1909 produced little or no bloom.

Apple orchards that received the very best care, and especially where spraying was done thoroughly, produced in 1908 pretty good crops in most cases, while those that received no care at all, and no spraying, were as total a failure as we ever had. On account of there being a light bloom last spring again, the farmers and most of the orchard men did but little spraying. On the other hand a few of our best orchard men sprayed, and sprayed thoroughly, and not only saved this year's crop, but also preserved the best foliage we have had for years. In fact, taking the orchards as a whole, there was better foliage than we have had for years, which is one of the best factors for a crop of good, strong fruit buds for next year.

Fruit brought high prices on the market. Never before was there such a demand for the upper, and also the under grades of fruit. In other words, the man with apples sold every grade he had, from the fancy to the rottenest vinegar apples, at an unusually high prace.

Peaches, No. 1, sold for $1.50 to $2.00 a bushel, according to quality.

Land continues to increase in value in this district, but the planting of both commercial and home orchards and small fruits are decreasing. Farm orchards are suffering more each year from insects and fungi. The farmers seem to think they cannot afford to be bothered with the extra care of their orchards which is necessary, in order to raise their fruit.

This is a rich agricultural district and the farmers want to devote their whole time to that rather than the horticultural part of it.

Land is selling from $100 to $200 per acre. There is a promising demand for fence posts, and many farmers are planting black locusts, which are making a rapid growth and apparently will be a profitable crop.

The farmers must, in some way, be induced to take more care of their orchards, else in a few years many farmers will not be raising any of their own fruit. In fact, as they now care for their orchards, they are not profitable and never will be, unless there are more modern plans adopted. Lectures and spraying demonstrations will greatly help them.

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Best results from spraying the orchard for San Jose scale is by use of sulphur and lime before buds swell in spring. Best results for spraying for scab and codling moth is by use of Bordeaux and arsenate of lead. First, spray with 4-4-50-2 just before blooms open. Second, spray with 3-4-50-2 just after petals fall. Third, spray with 3-4-50-2 ten days later. Fourth, spray with 2-4-50-2 about the last of June or first of July. If worms are unusually bad, spray again with arsenate of lead, about two pounds of lead to 50 gallons of water, and no sulphate.

REPORT OF THIRD DISTRICT.

W. J. Ritterskamp, District Vice-President.

I regret very much to report that orchard prospects in the "Pocket" are not nearly as bright as they were a few years ago.

The San Jose scale is taking the trees, and what is most deplorable, young trees from three to eight years old are most infested, and many young orchards are almost past redemption now. This little insect seems to detect the quality of fruit in the juice of the tree, for invariably it will cover and kill a Grimes Golden, and do but little harm to a Black Twig or Ben Davis near by. The same will hold good with pears, Seckel being the first to be killed, while Garber and Kieffer will be almost immune. We find few scale on the sour cherry, but the sweet varieties are being killed. Some of the grape vines are found dead and dying, and I have discovered the little pest hidden well under fibrous cover of the vines, protected from enemy and spray.

Quite a few farmers have awakened to the need of spraying through the advent of San Jose scale, and are equipping themselves with pumps and seeking information how best to combat the evil. This will lead to spraying against the ravages of the codling moth and fungous diseases also.

So far there has been but very little summer spraying practiced. I doubt if one per cent of the bearing apple trees in the First District are thoroughly and intelligently sprayed. The apple crop was almost nil; a few summer varieties only were seen on the market. Of pears there was probably 20 per cent of a crop, mostly Kieffer. Peaches gave about the same per cent, the bulk of which were seedlings and inferior varieties. The shortage in peaches was due mostly to rot which attacked the fruit a week or more before ripe and destroyed nearly the entire product of the better sorts. Cherries were not plentiful, and were inferior. Curculio and worms caused much damage and 40 per cent would about state the pick of sound fruit.

Plums were almost a total fatilure, a few Weaver, Wild Goose and other native sorts being gathered and much appreciated. I believe the growing

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of our native plums should be more encouraged, and if our children had the vote many more would be planted than are now found.

Blackberries gave us a full crop, Early Harvest being most profitable. Other desirable sorts are Snyder, Taylor and Eldorado. Early King seems much affected with Anthracnose, and gives us very meager returns.

Black raspberries yielded a full crop, especially on two and three-year-old plantations, and four years seems to be about the limit of profitable age of Black Caps, Anthracnose getting the better of them soon after and sometimes before the third crop is harvested. Cumberland and Kansas lead the van. Cuthbert and Cardinal are reliable among the reds.

Strawberries bore well, but owing to the very severe drouth of 1907, the plants stood rather thin in newly-set and well-cared-for plantations, while many two-year-old and some newly-set patches were plowed under last spring for lack of sufficient set of plants. Haverland and Dunlap, Bubach, Sample and Belt are most profitable among the forty or more varieties we grow. These are also highly spoken of by many Evansville growers. Prices ruled high for all berries. Early blackberries and most black raspberries sold for three dollars per twenty-four quart crate, as did the better strawberries.

Gooseberries yielded well and were very profitable at forty cents per gallon.

Early potatoes gave a very satisfactory yield and the prices ranged from fifty cents to one dollar per bushel. Some patches yielded two hundred and more bushels per acre, and the quality was much superior to the Wisconsin and Michigan stock now found on our markets.

Early tomatoes, beans, cabbage anad all garden vegetables gave abundant yields and the markets were overstocked all summer with standard vegetables. It was difficult to secure paying prices for many of the vegetables, while cabbage and green beans could hardly be moved at any price.

Better spraying, closer pruning and higher feeding of our fruit trees, bushes and vegetables will result in bringing us more profit for the money invested.

REPORT OF THE FOURTH DISTRICT.

WM. W. WALTMAN, Bean Blossom, District Vice-President.

The apple crop was an entire failure. Peaches one-half crop, and pears one-eighth, and as to plums, cherries and other small fruits, one-fourth crop, the worst that has ever been. As for spraying, some did and others did not, yet none had fruit. Prospect is good for a crop next year on apples. Those who had any apples to spare got a good sound price for them; also same as to peaches.

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There is a good prospect for a large planting to orchards for the coming season, if all plant that now claim they intend to. The heavy sleet has injured some of the older peach trees.

REPORT OF FIFTH DISTRICT.

JAMES W. CARVER, Greencastle, District Vice-President.

The fruit crop of our district this year must be said to be poor, with the exception of peaches, and they were excellent. Berries about one-half a crop. Apples about 5 per cent, pears 10 per cent.

The reason most attributed was the dry weather of the year before—1908.

The real reason was lack of cultivation and fungous troubles, together with dry weather. A few orchards that were cultivated last year had one-third of a crop.

York Imperial, Indian and Yellow Transparent in a good many orchards did well without cultivation, these varieties being less subject to leaf troubles than others. In Vigo county and east and northeast of Terre Haute, a good many farm orchards had a fair supply of apples. Parke County fared about the same north of the same sections.

Ben Davis had its third failure, except in the Carver orchard at Greencastle, where from one to ten bushels per tree were gathered. This orchard had been plowed in 1908 and sprayed with lime-sulphur solution about the time the red was showing in the bloom. This orchard was pretty thoroughly covered with Scurfy scale, and now has but a small per cent left. Put on at this time, the observation was it served as well, if not better, than the first application of blue stone and lime for scab.

The San Jose scale, while not showing in any bearing orchard in district that I have seen or heard of, yet the young trees the nurseries from out the State are sending us are full of them. Find the advice is now to all orchardists and farmers to get ready to fight them. It is not a very hard job, or extremely expensive, and saves one spray of other mixtures for scab and fungous troubles.

Lack of interest is prevalent, and a great fruit district is allowing trees to go into a decline. Work and study will bring paying results.

REPORT OF SEVENTH DISTRICT.

J. J. MILHOUS, Valley Mills, District Vice-President.

In writing my report for 1909, I feel at a loss what to say and not have a sameness with former reports, as my district (7) includes Marion County alone. I will say, however, that there has been some improvement in the matter of spraying. A number of farmers and horticulturists are becoming

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awakened to the fact that their only hope for future crops of fruit rests on better care and thorough spraying, as the San Jose scale is getting distributed in quite a number of places in the county, which means "no spray no fruit" in a very few years. Our able State Entomologist is declaring, with no uncertain sound, that the fruit grower whose trees are infested with the scale must either spray the trees themselves, or the State will do it at their expense.

The fruit crop in the county the past year has been very short, probably due to late freeze in part, and more to neglect of spraying and destroying the insects which made the fruit trees and the young fruit their home.

Prices have ruled high, early apples as well as all summer apples which had proper care, bringing as high as $2.50 per bushel. The pear crop was on many orchards very short, while others were very full. As to pears, Kieffers are all we grow.

The berry crop was very short, owing to the season of 1908 being so dry that but meager canes were made by the raspberry or blackberry. These berries (good ones) sold as high as $4.00 per 24-quart crate. Strawberries were high throughout the season.

The melon crop was short, on account of the very wet season. Many of the young sets fell off from the effects of mildew, and many of the seeds planted did not grow, the ground being cold and wet, causing the seed to decay. The prices throughout the season in most cases were very satisfactory for good melons. By that, I mean melons which had been planted on proper soil and allowed to mature on the vines before being cut off to be taken to market. Quite a number of melons sold as high as $4.00 per barrel, and possibly a few above those figures. Good melons in the district will soon be a thing of the past unless the growers control the blight, which can easily be done by proper spraying.

Those farmers who have had faith in chance and kept planting peach trees, have in the past two years reaped bountiful crops, with very satisfactory prices, fine fruit selling as high as $3.00 per basket.

REPORT OF THE EIGHTH DISTRICT.

AMOS GARRETSON, Pendleton, District Vice-President.

In the first place, about 99 per cent of the farmers' orchards receive no care; they are neither cultivated, sprayed nor pruned, unless pruned by cattle and other stock. In and around Fortville, Anderson, Muncie and other places, the San Jose scale is playing havoc with the trees. Very few people have made any attempt to destroy the scale, and in a short time this scale will consequently destroy the trees.

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It seems to me the man who takes proper care of his trees will soon be well rewarded for his time. Apples range from nothing to 25 per cent of a crop. The prices have been good, ranging from $2.50 to $5.00 per barrel, according to kind and quality. Early varieties yielded better than late.

Orchards that have been cared for made a good growth during the past season. I think I have never seen fruit buds stronger and go into winter in better condition. We should look for a good crop the coming year, providing hail storms, late hard frosts, continued rains at blooming time, etc., do not destroy the crop.

In my estimation, Grimes and Jonathan are the best varieties for family use or for market. Mammoth Black Twig is proving a success for me—the tree is strong, perfect in shape, apples yield well and the quality is very good. They are a close second to Jonathan or Winesap (Winesaps do not do well for me), are good cookers, good keepers and good sellers, and fine for eating late in the season.

Kieffer pears did fairly well the past season—fully 50 per cent of a crop. Very hard winds the latter part of September and the first of October blew many of them off of the trees. Still, those lying on the grass in the shade of the trees seemed to ripen well. I received one dollar per bushel.

My Kieffer trees were set out in 1900 on each side of the drive and along the county roadside, planted in sod and never cultivated. When I planted them they were heavily mulched with stable and yard manure a distance of five feet across, or fifteen feet in circumference, depth of manure six or eight inches when packed down. This, of course, killed the grass and held the moisture so the trees made a good, strong growth—the grass now covers the mulch. I have not seen a sign of blight.

Strawberries and raspberries were short crops, prices good—ten to fifteen cents per quart for best strawberries.

Cherries yielded about twenty-five per cent of a crop.

Peaches have been a grand success. Nearly all of the old trees, no matter how straggly, were full. One could hardly see how they could do so well since they had no care whatever. Forty or fifty years ago apple trees bore with the same success, but those good times have passed and are not likely to return.

If we want good fruit and plenty of it we must stick to business early and late, spray, prune and cultivate.

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REPORT OF ELEVENTH DISTRICT.

E. R. GUSTIN, Peru, District Vice-President.

In Miami County the fruit yield for the past year has been good except in apple, pear and plum. There was a good crop of peaches, cherries and all small fruits, with prices most favorable to the producer. Where summer spraying was conducted intelligently the results were very good.

The San Jose scale has increased some throughout Miami County during the past summer. I think, however, most all the parties owning or having control of the larger orchards in this locality have already made definite arrangements for a thorough winter spraying with either lime-sulphur or some of the soluble oils.

REPORT OF TWELFTH DISTRICT.

A. H. BOGUE, Lima, District Vice-President.

The past season has been above the average one. Small fruits, with the exception of cherries, yielded well and prices were good. Cherries were not an abundant crop and inferior in quality. In some parts of the district, however, they were about an average. Peaches were very plentiful and the quality usually good, but it could have been improved in many places by removing part of the crop from the trees in the early part of the season, which seems to have been generally neglected.

Pears were above the average and quality fine where the trees were sprayed. Apples were practically a failure, but in some localities the trees were loaded, but the fruit very inferior in quality. There seems to be a greater interest taken in horticulture, and especially is this true in the northern part of the district. Most farmers have an orchard and some small fruits, but they are badly neglected; orchards are neither pruned, sprayed nor fertilized, but I firmly believe that the demonstration work from Purdue will be a great help to the farmers and the means of creating a still greater interest in fruit growing. As soon as the farmer becomes convinced that he can do the work and that it will be a paying investment he will not be slow to take advantage of it. I believe in teaching the rising generation agriculture and horticulture in the public schools, and that our rural school grounds should be made more attractive. Our farm homes should receive more attention, and made not only more attractive but more convenient, and let us not forget our roadsides and remove the brush and weeds, and a good work will be accomplished.

The above does not apply to all sections, as we have some as beautiful homes and the roads as good as can be found anywhere in the State.

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MINUTES OF MEETINGS OF EXECUTIVE BOARD.

PURDUE EXPERIMENT STATION,
LAFAYETTE, IND., January 13, 1909.

The State Board of Horticulture met in accordance with previous notice. Present, President Lindley, Treasurer Hazelett, Secretary W. B. Flick and James Troop, Executive Committee.

The following bills were filed and allowed and warrants drawn on the treasury for the same:

(See secretary's report, December 1, 1909.)

On motion adjourned.

W. B. FLICK,
Secretary.

INDIANAPOLIS, IND., April 9, 1909.
ROOM 11, STATE HOUSE.

The State Board of Horticulture, in accordance with the call of the president and secretary, met in special session at the above date and place at one o'clock p. m.

Present, W. C. Reed, president; C. N. Lindley, vice-president; S. A. Hazelett, treasurer; W. B. Flick, secretary; E. Y. Teas and James Troop, members of the Executive Board.

The president stated the object of the meeting was to consider the future work of the society as conditioned by the reduced appropriation by the State and the election of a member for the Horticultural Society of the Advisory Board of the Purdue Experiment Station, and any other business which may come under the call.

H. H. Swaim, South Bend, and W. B. Flick, Lawrence, were nominated for members of the Advisory Board to represent the society at the Purdue Experiment Station. Upon balloting W. B. Flick was chosen.

On motion of W. B. Flick, seconded by James Troop, the lease which the society holds for the occupancy and use of the experiment orchard at Orleans, Indiana, was ordered transferred to Purdue Experiment Station, and the papers necessary to convey the same were ordered to be executed by the president and secretary as soon as practicable.

On motion of James Troop and seconded by E. Y. Teas it was ordered that from and after July 1, 1909, this office shall be closed until further notice except on Friday of each week, when the secretary shall be present to receive visitors and transact such business of the society as may be presented, and that the salary of the secretary shall be reduced to fifty dollars per month until further action be taken.

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On account of the straitened conditions of our funds, which will require strict economy in the expense, it was deemed inexpedient to accept the invitation of the Winona Assembly to hold the summer meeting this year on their premises, and the secretary was directed to tender them our appreciation and thanks for the invitation and to courteously decline the acceptance for reasons as given.

E. Y. Teas suggested that the summer meeting be held at Centerville. On motion he was directed to consult leading citizens of Centerville and vicinity, and if the feeling is favorable arrange dates and other matters with the secretary.

Bills were filed and the following allowances were made and warrants for the same ordered drawn on the treasury:

(See secretary's report made December 1, 1909.)

No further business appearing the board adjourned.

W. B. FLICK,
Secretary.

CENTERVILLE, IND., August 5, 1909.

The Board of Horticulture met at the above place and date. Present, C. N. Lindley, S. A. Hazelett, W. B. Flick, James Troop, E. Y. Teas and H. H. Swaim.

The following bills were filed, allowed, and orders on the treasury drawn for the same:

(See secretary's report December 1, 1909.)

No further business appearing, board adjournment.

W. B. FLICK,
Secretary.

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